REPORT RESUMES

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A STUDY OF THE EDUCATIONAL AND EXPERIENTIAL BACKGROUNDS AND PRESENT POSITIONS OF SCHOOL PLANT SPECIALISTS.

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THIS DOCUMENT REPORTS ON INVESTIGATION OF SCHOOL PLANT SPECIALISTS' EDUCATIONAL AND EXPERIENTIAL BACKGROUNDS AND POSITIONS. THE STUDY CONVEYS BIOGRAPHICAL DATA ON AGE, SEX, ENTRY TO THE SPECIALIST FIELDS, CERTIFICATION, AND MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS. THE STUDY SURVEYS THE SPECIALISTS' MAJORS AND MINORS, THE HIGHEST DEGREE, UNDERGRADUATE AND GRADUATE WORK, SCHOOL PLANT AND RELATED COURSES TAKEN, INSTITUTIONS GRANTING HIGHEST DEGREE, AND FORMAL EDUCATIONAL EXPERIENCES. EXPERIENTIAL DATA SHOWS PREVIOUS PROFESSIONAL EXPERIENCE AND TASKS IN THE SPECIALISTS' PRESENT POSITIONS. THE ANALYSES OF THE SPECIALISTS' TASKS ARE INDICATED AS THEY ARE RELATED TO THE HIRING INSTITUTION. A REVIEW OF THE LITERATURE ON THE SCHOOL PLANT SPECIALIST IS GIVEN. (GM)

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by

Thelbert L. Drake

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CHAPTER I

INTRODUCTION

Planning educational facilities has been a concern of educators and the public for many years. As education became more complex, as the number of students increased and as knowledge about learning was extended, the problems involved in planning educational facilities grew. Concern about planning for educational facilities led to the forming of an organization for persons working in this field.

> . . . on March 2, 1921, Samuel A. Challman of Minnesota, Charles McDermott of New Jersey, and Frank H. Wood of New York met to discuss the formation of an organization to deal with the problems of school plant planning and construction.[1]

The new organization, the National Council on Schoolhouse Construction, held its first meeting in 1922. Thus emerged an organization for persons who had concern for a specific phase of providing education for the young. These persons were "specialists," different from the architect or engineer who specialized in design or construction.

Specialized Training Indicated

In 1934, Oscar L. Chapman, Assistant Secretary of the Interior, noted that the problem of school plant planning was being taken out of the field of hit-and-miss and developed scientifically by a trained group of specialists.[2] The educational background of the planner was cited as being important.

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[1] National Council on Schoolhouse Construction, Guide for Planning School Plants (East Lansing, Michigan: National Council on Schoolhouse Construction, 1964), p. iii.

Thirty years later, school plant is considered an established specialty in relation to training. Willower and Culbertson distinguished four types of broad specialties. "The second, and by far the most numerous, type is the 'field' specialty (school plant, school finance, school law, . . .)."[3]

The need for specific training in school plant seemed to be increasing. W. W. Carpenter suggested that course work and experiences leading toward the doctorate in school plant planning might be a desirable direction in which to move.[4]

Experience Cited as Important

States have long felt the need to aid local districts in planning school buildings. Stock plans and detailed standards were developed, even to the extent of telling which direction the building should face. Yet, there was concern for how the building met local needs. It was suggested that a man was needed in the state departments of education to check plans. ". . . the department conferee should be a man of school experience who has studied and is familiar with the problem."[5] William

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[2] National Council on Schoolhouse Construction, Proceedings of the Twelfth Annual Meeting (Washington, D.C.: 1934), p. 9.

[3] D. J. Willower and J. Culbertson (ed.), The Professorship in Educational Administration (Columbus, Ohio: University Council for Educational Administration, 1964), p. 5.

[4] W. W. Carpenter, "Training of the Educational Facilities Planner," N.C.S.C. Newsletter, Vol. 3, No. 2 (March, 1965), p. 4.

[5] National Council on Schoolhouse Construction, Minutes of the Annual Meeting, October, 1927 (in the files of the Council), p.42.

W. Chase, Specialist in School Plant Administration, U.S. Office of Education, stated:

> This wide and diversified range of responsibilities required of the educational building consultant implies that certain types of formal training and experience are essential to equip him to better do the job he is doing or will be doing.[6]

Value of the Study

Increasing Need for Specialists in School Plant

If a school district has a good architect, is there still a need for a school planner? In 1927, F. R. Scherer stated:

> Communities which retain an architect with satisfactory schoolhouse experience, and at the same time have a superintendent with the ability and the time to interpret the educational programs into terms of efficient planning, need no other services. Those communities, however, not possessing both of these services, would do well to obtain such counsel before proceeding with working drawings.[7]

Twenty years later, Whitehead pointed out,"In the majority of communities in Ohio, and elsewhere, the administrator needs competent advice and assistance in organizing planning groups and in guiding their work in the proper direction."[8]

In October, 1964, William Chase stated:

> . . . loss of schools by fire and other causes will continue, population shifts and urban renewal will cause abandonment of some and the need for new facilities. Limited access highways are creating problems with respect to location and size of present and future school centers. The extension of the school

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[6] National Council on Schoolhouse Construction, Proceedings of the Forty-First Annual Meeting (Houston, Texas, 1964), p. 51.

[7] Minutes of the Annual Meeting (October, 1927), op. cit., p. 53.

[8] W. A. Whitehead, "General Procedures for Educational Consultant Service in Planning School Buildings," A paper read before a meeting of the National Council on Schoolhouse Construction, Columbus, Ohio, 1947. (Mimeographed)

year to include kindergarten, nursery, junior college, and adult education programs (including retraining; new concepts of teaching and the learning process are making many buildings obsolete, thus adding to the need for new facilities.

Estimated expenditures for elementary, secondary and higher education have increased from a total of $31.0 billion in 1962-63 to a total of $33.7 billion in 1963-64. Of these amounts, it is estimated that $5 billion was spent for capital outlay in 1962-63 and $5.3 billion in 1963-64.

Obviously, the impact of these ever-growing enrollments and expenditures for educational facilities points out the increasing need for the importance of the educational building consultant. If he is to keep abreast of classroom needs the consultant must, of necessity, become an integral part of the educational process.[9]

Growth of Professional Organization

Thirty percent of the total membership of the National Council on Schoolhouse Construction have joined the Council in the years 1962 through 1964, although the Council has been active since 1922. Such growth may be attributed to many factors. However, as early as 1949 the Council's Secretary stated that the Council's membership included virtually all the public school plant specialists in the country.[10] Therefore, this growth in the Council's membership would seem to indicate increased interest in the field. Yet, in spite of this apparent increased activity, Fox stated that the demand for school plant specialists far outweighs the supply.[11]

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[9] Proceedings of the Forty-first Annual Meeting (1964), p. 49.

[10] National Council on Schoolhouse Construction, Proceedings of the Twenty-sixth Annual Meeting (Indianapolis, 1949), p. 6.

[11] Willard Fox, "You Need a School-building Consultant," American School Board Journal, Vol. 148, No. 1 (January, 1964), p. 52.

Description of Prevailing Situation

Because of a growing need for school plant specialists, and the apparent increase in the number of specialists as indicated by the growth of their professional organization, it was felt thatthe education and experience of the specialists should be investigated. Such investigation would be to describe the present status of the school plant specialists in relation to their present positions, education, and professional experiences. This kind of descriptive research has been considered valuable for making improvements in many areas of education. VanDalen described this value as follows:

> Before much progress can be made in solving problems, men must possess accurate descriptions of the phenomena with which they work . . . . To solve problems about children, school administration, curriculum, or the teaching of arithmetic, descriptive researchers ask the initial questions: What exists -- what is the present status of these phenomena? Determining the nature of prevailing conditions, practices, and attitudes -- seeking accurate descriptions of activities, objects, processes and persons -- is their objective. They depict current status and sometimes identify relationships that exist among phenomena or trends that appear to be developing. Occasionally, they attempt to make predictions about future events.[12]

Purpose of the Study

This study describes the school plant specialists' educational and experiential backgrounds and present positions. Underlying this objective was the purpose of providing information which might serve to stimulate further inquiry. VanDalen suggested this about descriptive studies:

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[12] Deobold B. VanDalen, Understanding Educational Research (New York: McGraw-Hill Book Co., Inc., 1962), p. 184.

> Factual information about existing status enables members of the profession to make more intelligent plans about future courses of action and helps them interpret educational problems more effectively to the public. Pertinent data regarding the present scene may focus attention upon needs that would otherwise remain unnoticed. They may also reveal developments, conditions, or trends that will convince citizens to keep pace with others or prepare for probable future events. Since existing educational conditions, processes, practices, and programs are constantly changing, there is always a need for up-to-date descriptions of what is taking place.[13]

George Collins of the U.S. Office of Education, recently published a bibliographic summary of research in the field of school plant.[14] The summary included books, publications of the government, learned societies and other organizations, and doctoral dissertations. He included no study dealing with the background of the professional plant specialist. Therefore, it was felt that such a study would be a worthwhile addition to the literature.

Limitations of the Study

As stated above and described by the title, it was intended to describe the educational and experiential backgrounds and present positions of school plant specialists.

1. It was the purpose of this study to investigate only the biographical information of age, sex, when the planner first entered the field of school plant, certification, and professional organizations to which he belongs.

2. Information concerning the specialists' educational backgrounds was limited to the highest degrees held, majors and minors in

---

[13] _Ibid_., p. 212.

[14] George Collins, "Doctoral Dissertations on School Plant Planning and Design," _School Business Affairs_, Vol. 30, No. 12 (December, 1964), p. 9.

undergraduate and graduate work, school plant courses, helpful related courses, institutions granting highest degrees held, and certain experiences gained through formal education.

3. Experiential data were limited to professional experiences prior to the present position held, experiences gained through formal education, and tasks of present positions.

4. Analysis of the specialists' tasks was limited to an indication of what these tasks were according to type of hiring institution. There was no weighting of tasks, nor was any manner of rating asked for or applied.

5. The study was not intended to describe the "average" specialist.

Questions for which Answers were Sought

This study was intended to provide information upon which more penetrating analyses might be made. Further analyses could be made later such as, relationships between education and job performance, job analyses by types of hiring institution, comparative analysis of similar data at a later date to determine changes in the field. VanDalen cited this, the seeking of higher order meanings, as being a function of explanatory hypotheses and not of descriptive studies.[15]

In addition to the factual data sought as outlined in the limitations of the study, there were questions concerning patterns of education, experience, and the positions held.

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[15] VanDalen, op. cit., p. 215.

Education

1. Are there significant patterns as to the number of specialists educated at certain institutions?

2. Are there patterns in relation to majors and minors commonly studied by school plant specialists?

3. Are there patterns as to what types of related courses are most helpful to school plant specialists?

4. Are there patterns in relation to the specialists' opinions concerning the most desirable educational experiences for their present positions?

Experience

1. Does a particular pattern emerge as to positions held prior to entry into the field of school plant?

2. Are there particular experiences common to the backgrounds of specialists? Do the specialists feel some of these experiences are desirable or even necessary?

Positions Held and Related Questions

1. What types of positions are in the field as indicated by job titles?

2. To what position is the specialist usually responsible? What positions are usually responsible to him?

3. If the specialist is not full time in the field of school plant, of what does the remainder of his work consist?

4. Which tasks are most time consuming?

5. Which tasks are most difficult because of a lack of training and/or experience?

6. With whom does the specialist work in planning new facilities? Do there seem to be any anticipated changes in this pattern from the specialists' points of view?

7. How satisfied is the specialist with the economic and professional aspects of his position?

Definitions

School Plant Specialist

For the purpose of this study, the school plant specialist was considered any person who qualified for membership in the National Council on Schoolhouse Construction as defined by the Council's Bylaws.

> 1. Persons meeting one of the following classifications are eligible for membership in the Council:
>
> (a) Federal, state, provincial, and local school officials whose duties are primarily concerned with educational facilities programs, and planning educational facilities.
>
> (b) College and university staff members who teach educational facilities courses, direct or conduct educational facilities surveys, or render educational facilities consultant services.
>
> (c) Editors of educational and architectural periodicals regularly devoting considerable space to educational facilities problems.[16]

School Plant Planner

The term school plant planner should be differentiated from the term school plant specialist. By the above definition of specialist, it is discernible that the specialist can be concerned either very narrowly with one aspect of school plant, with a related area such as lighting, or with the whole field of educational facilities planning.

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[16] Proceedings of the Forty-first Annual Meeting, (1964) pp. 125-26.

For the purposes of this study, the term specialist will include all those above, but the term planner will refer to those individuals or roles which concern themselves, at least as part of their responsibilities, with the relationship of educational program to the educational facilities in either or both long range planning or planning for a particular building.

Procedure

The procedure for conducting this study consisted of three parts: (1) survey of the literature concerning the educational and experiential backgrounds of the school plant specialist; (2) a pilot study to refine the questionnaire for gathering data; and (3) collection and analysis of data from the membership of the National Council on Schoolhouse Construction.

Selection of Sample

The National Council on Schoolhouse Construction was selected as a sample for this study because:

1. It is the only national organization devoted exclusively to elementary, secondary, and higher education school plant problems.

2. The Council's membership constitutes, at the least, a majority of school plant specialists in the nation. In 1949 it was stated:

> The National Council on Schoolhouse Construction is a small organization, but its membership includes virtually all the public school plant specialists in the nation. The membership includes directors of schoolhouse planning at federal, state, and local

> levels; governmental and private school architects and engineers; survey specialists; and a small number of teachers of school plant planning.[17]

More recently, a breakdown of the Council's membership was published in the N.C.S.C. Newsletter.

> Make-up of the Council by type of planner is as follows:
>
> 117 -- Local District Planners
> 114 -- State or Provincial Planners
> 71 -- College Professors
> 24 -- Architectural Firm Employees
> 14 -- Federal Agency Employees
> 6 -- Editors
> 20 -- Retired and/or Life Members or unidentified.[18]

At the beginning of the study the Council had 387 members. The seven Executive Committee members were used in the pilot study to help develop the questionnaire and were not included in the final mailing of 380 questionnaires.

Development of Questionnaire

The questionnaire was developed by (1) surveying the literature concerning the tasks of the school plant planner; (2) through discussion with planners and research personnel; and (3) a pilot study using the Executive Committee of the Council.

Survey of the Literature

The major school plant service areas were listed by Parker[19] and McGuffey[20] for state departments of education. A joint publication by the American Institute of Architects and the National Council on Schoolhouse Construction lists responsibilities of the participants in planning, designing and building a school plant.[21] From these sources, the tasks were listed for items 5/7 and 5/9 of the questionnaire. (See Appendix A, page 99)

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[17] Proceedings of the Twenty-sixth Annual Meeting (1949), loc. cit.

[18] N.C.S.C. Newsletter, Vol. 2, No. 5 (July, 1964), p. 6.

[19] Floyd G. Parker, "The Role of the Nebraska State Department of Education in Providing School Plant Services," (unpublished Ed.D. dissertation, University of Nebraska, 1956), p. 45.

[20] Carroll W. McGuffey, "A Study to Determine the Services and Staff Needed to Provide a State School Plant Program for Georgia," (unpublished Ed.D. dissertation, Florida State University, 1957), pp. 211-15.

Hamon's[22] study of school plant courses and a checklist for school plant courses for a current study being conducted by Chase[23] were helpful in developing item 2/8, experiences gained through formal education. (See Appendix A, page 99)

Discussion

Throughout the development of the questionnaire, discussion with school planners and research personnel was helpful to clarify meanings of items and reduce ambiguity.

Pilot Study

Members of the Council's Executive Committee were chosen for the pilot study to refine the questionnaire. Six out of seven returned the questionnaire. As a result of this study, the questionnaire was expanded to include item 2/8 mentioned above. The format was also changed to a checklist form in as many items as was feasible.

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[21] Responsibilities and Relationships in Planning, Designing, and Building a School Plant, American Institute of Architects, Document No. M501, 1958.

[22] Ray L. Hamon, School Plant Courses Being Offered by Colleges and Universities in the U.S. (Washington: U.S. Government Printing Office, 1959).

[23] This study is currently being conducted by William Chase for the U.S. Office of Education to up-date Hamon's study. It is alluded to in the 1964 Proceedings of the National Council on Schoolhouse Construction, p. 52.

Mechanics

After the questionnaire had been revised, it was sent, with appropriate cover letter (see Appendix A, page 99), to the total membership of the Council. Also included were self-addressed, stamped envelopes for the respondents' use.

The study was announced to those members attending the 1964 Annual Meeting of the Council, and two reminders were sent to each member through the N.C.S.C. Newsletter.

Upon the return of the questionnaire, appropriate responses were transferred to machine data processing cards and the other information was tabulated by hand.

There were 234 usable questionnaires returned.

Reporting of Findings

The findings of the study are reported in five chapters as follows:

Chapter I. INTRODUCTION

Introduction to and statement of the problem, and explanation of the value and design of the study, how it was developed, and how presented.

Chapter II. PERSONAL DATA AND EDUCATIONAL BACKGROUNDS

Report of findings on personal data. A review of the literature related to the education of the planners and a report of the findings of this study.

Chapter III. EXPERIENTIAL BACKGROUNDS AND PRESENT POSITIONS

A review of the literature related to necessary experience for the planner and related to the role of the planner. A report of the findings of this study concerning these two areas.

Chapter IV. IDEALS

A report of respondents' opinions concerning ideal educational and experiential backgrounds for specialists holding positions similar to theirs.

Chapter V. CONCLUSIONS AND RECOMMENDATIONS

A statement of conclusions and recommendations reached after an analysis of the data.

Summary

The problems of planning adequate facilities have increased to the point of requiring specialized help. The need for such help surpasses the availability of school plant planners although there seems to be an increase in both interest and numbers in the field.

This study was designed to describe the school plant specialists' educational and experiential backgrounds and present positions. The sample, members of the National Council on Schoolhouse Construction, was chosen because it seemed to be the most representative group of school plant specialists.

This study examined some of the aspects of the specialists' backgrounds and positions in order to provide information helpful to the field and which might generate further investigation.

CHAPTER II

PERSONAL DATA AND EDUCATIONAL BACKGROUNDS

Introduction

This chapter is divided into two sections: Personal Data and Educational Background.

Personal data sought were only those considered to be pertinent to the role of a school planner.

Personal Data

Ages

The ages of the school planners were of interest both in the present and when they first entered the field of school plant planning. The ages of the planners responding ranged from twenty-nine to eighty-one; the median being forty-nine and mean 49.6 years of age. The study of school administrators reported by the American Association of School Administrators in 1952[1] stated that the median age of superintendents was forty-nine, the same as that of the school planner today.

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[1] American Association of School Administrators, The American School Superintendency (Washington: AASA, 1952), p. 447.

TABLE 1

PRESENT AGES OF SPECIALISTS BY DECADES

Age Ranges	Number	Percentage
20-29	1	.4
30-39	48	20.5
40-49	70	29.9
50-59	66	28.3
60-69	42	17.9
70-79	4	1.7
80-89	1	.4
No response	2	.9
Total	234	100.0

The respondents entered the field of school plant planning at widely differing ages. The ages ranged from seventeen to sixty as indicated in Table 2. Forty-eight percent of the respondents stated that they entered the field of school plant planning when they were in their thirties. The median age for entering the field was thirty-seven.

Age and Education

Table 3 shows the present ages of the respondents by their ages of entry into the field of school plant, and Table 4 shows their present ages by highest degrees held.

Examination of the data shows that the educational level as represented by highest degrees held is higher in the younger age ranges. Earlier entry into the field is also indicated by the data in Table 3. The increasing need for new facilities and an increased emphasis on advanced degrees early in the careers of prospective administrators have both acted to encourage earlier entry into the field.

TABLE 2

AGES OF SPECIALISTS UPON FIRST ENTERING THE FIELD OF SCHOOL PLANT PLANNING

Age	Number	Percentage	By Decades	Percentage
17	1	.4	(10-19) 1	.4
18				
19				
20				
21				
22				
23	1	.4		
24	4	1.8		
25	3	1.3		
26	5	2.2	(20-29) 33	14.7
27	7	3.1		
28	4	1.8		
29	7	3.1		
30	18	8.0		
31	12	5.3		
32	10	4.4		
33	13	5.8		
34	7	3.1	(30-39) 108	48.0
35	7	3.1		
36	11	4.9		
37	9	4.0		
38	14	6.2		
39	7	3.1		
40	9	4.0		
41	6	2.6		
42	11	4.9		
43	2	.9		
44	2	.9		
45	4	1.8	(40-49) 60	26.7
46	10	4.4		
47	4	1.8		
48	9	4.0		
49	3	1.3		
50	4	1.8		
51	2	.9		
52	3	1.3		
53	5	2.2		
54	2	.9		
55	3	1.3	(50-59) 22	9.8
56	2	.9		
57				
58				
59	1	.4		
60	1	.4	(60-69) 1	.4
Total	225	100.0	225	100.0

TABLE 3

PRESENT AGES OF RESPONDENTS BY AGES OF ENTRY INTO THE FIELD

Present Ages	Ages of Entry						
	20-29	30-39	40-49	50-59	60-69	No Resp.	Total
20-29						1	1
30-39	16	31				1	48
40-49	12	47	9			2	70
50-59	2	22	33	7		2	66
60-69	2	6	17	14	1	2	42
70-79		3				1	4
80-89						1	1
No response						2	2

TABLE 4

PRESENT AGES OF PLANNERS BY HIGHEST DEGREES HELD

Present Ages	Highest Degrees Held						
	None	Bachelor's	Master's	6-Yr.	Doctor's	No Resp.	Total
20-29					1		1
30-39		6	13		28	1	48
40-49	1	14	14	5	36		70
50-59	4	11	22	4	24	1	66
60-69	1	5	13	4	18	1	42
70-79			1		3		4
80-89		1					1
No response						2	2

Membership in Professional Organizations

The respondents were asked to indicate those organizations of which they were members. In addition to belonging to the National Council on Schoolhouse Construction, the respondents belonged to the organizations as indicated in Table 5. This list is not exhaustive.

There were thirty-five professional organizations mentioned at least once in addition to those listed. Of these thirty-five, those mentioned five times or more were -- (a) a state school administrator's organization - 17; (b) an engineering society - 16; (c) a state school business officials' organization - 13; (d) The Northeast Council on Schoolhouse Construction - 12; (e) American Educational Research Association - 10; (f) The School Facilities Council - 9; (g) National Society for the Study of Education - 8; and (h) The American Association of University Professors - 7. Also, there were a number of fraternal and civic groups mentioned.

TABLE 5

PROFESSIONAL ORGANIZATIONS TO WHICH RESPONDING SPECIALISTS BELONGED

Organization	Number	Percentage
American Association of School Administrators	133	56.8
American Institute of Architects	20	8.5
Association of School Business Officials	64	27.4
Association for Supervision and Curriculum Development	22	9.4
National Education Association	154	65.8
Phi Delta Kappa	142	60.7
State Architects Association	27	11.5
State Education Association	170	72.6

Certificates and Licenses Held

The respondents were asked to list the certificates and licenses which they held. The most commonly listed were the state teaching certificate and state administrative certificate. Seventy of the specialists did not respond to the item or indicated that they held no certificate or license. A few stated that their doctoral degrees were valid certification for the state in which they worked. Table 6 shows the distribution of responses.

TABLE 6

CERTIFICATES AND LICENSES HELD BY RESPONDENTS

Type of Certificate	Number	Percent
State Teaching	89	38.0
State Administrative	87	37.2
State Architects	15	6.7
Professional Engineer	9	3.7
State Supervisory	6	2.6
Civil Engineer	2	.9
Junior College Teaching	2	.9
General Building Contractor	1	.4
Power Engineer	1	.4
Province School Inspector	1	.4
Public Health Inspector	1	.4
Real Estate Broker	1	.4
Master Steamfitter	1	.4
None or no reply	70	29.9

Years When First Positions Were Taken

With the exception of 1963 and 1964, the data represented in Table 7 correspond closely with the patterns in which specialists became members of the National Council on Schoolhouse Construction. This would seem to indicate that the specialists returning questionnaires were representative of the whole sample from that respect.

TABLE 7

YEARS WHEN FIRST POSITIONS WERE TAKEN

Year	Number of Respondents	Year	Number of Respondents
1916	1	1944	2
----	-	1945	6
1922	1	1946	6
1923	-	1947	16
1924	2	1948	12
1925	2	1949	10
----	-	1950	10
1928	1	1951	16
----	-	1952	5
1932	1	1953	3
1933	2	1954	11
1934	2	1955	10
1935	-	1956	11
1936	2	1957	12
1937	-	1958	17
1938	1	1959	8
1939	4	1960	4
1940	3	1961	7
1941	4	1962	19
1942	1	1963	6
1943	-	1964	4
		No response	12

Sex

Of the 234 specialists responding to the questionnaire, two were women. One worked on the editorial staff of a magazine devoting considerable space to school plant problems, and the other was an architect who is currently attending graduate school studying city and regional planning. At this point, the field of school planning is mostly a man's world.

Educational Background

Review of Literature Related to Education

Shaw pointed out that, "No course or array of courses can guarantee wisdom." He further stated that, "Preparation is literally endless, and 'living' means growing."[2] The following comments and findings were cited in light of Shaw's statements. Furthermore, accepting the fact of individual differences between persons, institutions, and positions, it was not a purpose of this study to cite the "averages" as being ideal.

General Educational Background

The literature generally agrees that the school planner must first be an educator, then he may also be conversant with the areas of engineering and architecture. Here William Caudill cautions that the school planner should not assume the role of an amateur architect.

Englehardt stated:

> Training in educational philosophy and psychology, in educational methods and curriculum, should be extensive and continuous. An essential is graduate courses in all fields of elementary, secondary, and general school administration, including financing, school plant development, maintenance and operation problems, equipment, and transportation programs. Associated training should be in the fields of city planning and general city administration. Education in engineering and service in an architectural organization assure coordination of the professsional activities.[3]

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[2] Archibald B. Shaw, "One View: Preparing Administrators," Overview, Vol. 3, No. 8 (August, 1962), p. 9.

[3] N. L. Englehardt, et. al., School Planning and Building Handbook (New York: F. W. Dodge Corp., 1956), p. 11.

The New England School Development Council also pointed out training in general educational administration as valuable to the school planner.[4]

Undergraduate training for the school planner was not discussed in the literature except in relation to the preparation of school administrators in general.

Specialized Training

Although the superintendent is responsible for overseeing the planning of facilities, he usually does not have the time to devote to the process, and in many instances does not have the specialized knowledge necessary. Herrick stated:

> The superintendent who is more likely to read school-plant literature and otherwise learn of practices elsewhere, will in general have a more comprehensive understanding of these matters, but he will lack the intimate knowledge that comes from day-to-day use of the facilities. The competent school plant specialist should have both the comprehensive understanding and the intimate knowledge.[5]

He further stated that the planner should know: (1) What kinds of facilities are and are not effective in fostering various phases of the school program; (2) Alteration of existing facilities; and (3) Success and failures of teachers in the use of various types of facilities. Herrick refers to this specialized knowledge as coming about through day-to-day use of the facilities. Yet, in order to perceive adequately what is and is not effective, or a possible alteration, the planner should have some background as to what is educationally realistic.

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[4] The Road to Better Schools (Cambridge, Mass.: The New England School Development Council, 1955), p. 50.

[5] J. H. Herrick, et. al. From School Program to School Plant (New York: Henry Holt & Co., 1956), p. 136.

Boles suggested that the school planner is expected to be a curriculum specialist to plan around the program, and a specialist in conducting surveys of building needs.[6] He further pointed out that ". . . there is a generous amount of literature so that a man could well become a specialist in any of the elements of school buildings, whether it is elementary, secondary or higher education."[7]

Carpenter wrote that the fifth year of study for the person intending to become a school plant planner might include "finance, engineering, public health, architecture, data processing, drawing, sociology, philosophy, anthropology, state and national government, and statistical procedure, if not previously taken."[8]

Welsh commented that some schools were providing that the students get out into the school systems and experience plant problems within the framework of their formal education.[9]

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[6] National Council on Schoolhouse Construction, Proceedings of the Forty-first Annual Meeting (Houston, Texas, 1964), p. 56.

[7] *Ibid.*, p. 57.

[8] W. W. Carpenter, "Training of the Educational Facilities Planner," N.C.S.C. Newsletter, Volume 3, No. 2 (March, 1965), p. 3.

[9] Proceedings of the Forty-first Annual Meeting (1964), p. 50.

School Plant Courses

In 1959, Hamon conducted a study for the U.S. Office of Education:

> (1) to ascertain (a) the content of school-plant courses as set forth in catalog descriptions, (b) the extent to which such courses are preparing general school administrators for their school-plant responsibilities, and (c) the extent to which these courses are preparing school-plant specialists; (2) to provide some background data relative to the need for improving the preparation of school-plant specialists; and (3) to prepare a directory of school-plant courses for the benefit of persons wishing to know where and when such courses are being offered.[10]

Of the 120 courses listed, thirty-four were offered to prepare school plant specialists, principals and superintendents, but only nine were offered specifically for school plant specialists.

Chase cited some results from a current study being conducted by the U.S. Office of Education to update Hamon's study.

> There was an average of 97 different school plant courses offered during each of the summer terms between 1959 and 1964 and an average of 140 each year during the academic years 1959-1963.
>
> Major topics areas included in the courses and the frequency with which they were covered were--
> a. Philosophy of school building planning
> b. School building surveys
> c. Planning functional facilities
> d. Developing educational specifications
> e. Functions and responsibilities of board of education, superintendent, architect, educational consultant, and others in the building program
> f. Administering the school construction program
> g. Building costs and economies
> h. Financing the school building program (capital outlay)
> i. Maintenance and operation
> j. Furniture and equipment
> k. School site, selection,and utilization
> l. School building design problems[11]

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[10] Ray L. Hamon, School Plant Courses Offered by Colleges and Universities in the United States, 1956-59, U.S. Department of Health, Education and Welfare (Washington: U.S. Government Printing Office, 1959), p. 1.

[11] Proceedings of the Forty-first Annual Meeting (1964), p. 52.

Such a list of content seemed to be quite comprehensive; enough so that each topic area might be developed into a separate course. Boles reacted to this problem of the two or three hour university course. "I do think that we can teach a person . . . a cohesive theory of school plant planning and development."[12] He also suggested that helping the student to understand how to organize and utilize human resources available in any school district, and directing his attention to sources of further information are necessary in a school plant course.

The literature usually emphasizes that merely a few courses in school plant planning are inadequate in educating the school plant planner. He needs additional work as suggested above.

Report of Data

Educational Levels

The planners were asked to indicate the highest degree they held. Forty-seven percent of the 234 planners responding to this item held the doctorate; 5.6 percent held a six-year diploma or equivalent certificate, and 26.9 percent held the master's degree. Table 8 shows the educational levels of the respondents.

All levels of education were distributed proportionately among the age levels. The doctorate in education deviated slightly from the pattern of the other degrees in that 61.6 percent holding this degree were in their thirties or forties. The other degrees were more evenly distributed.

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[12] *Ibid.*

TABLE 8

EDUCATIONAL LEVELS OF RESPONDING PLANNERS

Degree	Number	Percent
Ph.D.	32	13.7
Ed.D.	78	33.3
Six-Year Diploma	13	5.6
Master's	63	26.9
Bachelor's	39	16.7
Non-degree	7	3.0
No response	2	.9
Total	234	100.0

The general educational level of the school planners responding to this study was higher than that of superintendents.[13] One factor contributing to this difference is the inclusion of sixty planners employed by colleges and universities.

Universities and Colleges Granting Highest Degrees

There were eleven universities or colleges which granted the master's or doctorate degrees to five or more specialists as indicated by Table 9. A complete listing of universities and colleges granting the highest degrees held is in Appendix B. The University of Oregon and Indiana University each granted four master's and doctoral degrees to responding specialists. Eighty-five (41.9 percent) of the planners responding to this item were educated at eleven (13.4 percent) of the institutions listed. With the exception of a slight concentration in the Midwest, these eleven institutions are well distributed geographically.

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[13] American Association of School Administrators, The American School Superintendency, op. cit., p. 446.

TABLE 9

UNIVERSITIES AND COLLEGES GRANTING HIGHEST DEGREES HELD BY RESPONDENTS

University or College	Doctorate	Six-Year	Master's	Total
Colorado State	4		1	5
Columbia Univ., Teacher Col.	20	2	2	24
Michigan State University	4		2	6
University of Michigan	4		2	6
University of Missouri	4		2	6
University of Nebraska	8			8
Ohio State University	8		1	9
Peabody College	3	1	1	5
Stanford University	3	1	1	5
University of Tennessee	5		1	6
University of Wisconsin	2		3	5

Majors and Minors

Baccalaureate Degree.--The planners were asked to indicate their majors and minors at all degree levels. At the undergraduate level there was no pattern other than there seemed to be a fairly even distribution between the undergraduate majors. There were thirty-two majors named. Almost seventy-five percent of the respondents named the ten majors listed in Table 10. The eighteen respondents naming engineering majored in civil, electrical, general, mining or metal engineering. Biological, zoological, and general science majors were also grouped under one heading of science.

The seven minors shown on Table 10 represent those taken by 72.7 percent of the planners responding to this item. There were thirty-three minors named.

TABLE 10

UNDERGRADUATE MAJORS AND MINORS OF SPECIALISTS

Major	Frequency	Minor	Frequency
Mathematics	28	Mathematics	22
Social Studies	27	English	21
Engineering	18	Science	20
Education	17	Education	19
History	16	Social Studies	18
Industrial Arts	16	Physics	11
Architecture	14	History	9
Science	14		
English	11		
Business Administration	10		

There seemed to be little relationship between the type of undergraduate major or minor and the choice of entering the field of school plant planning.

Master's Degree.--There were twenty-four majors reported on the master's degree level by 170 specialists. Of these 170 specialists, 105 (61.7 percent) reported educational administration as their major. Table 11 shows all master's level majors named more than once and minors listed three times or more. The ten majors shown were taken by 91.9 percent of the responding planners.

Ninety planners reported a total of thirty-two master's degree minors. The thirteen minors listed were named by 72.2 percent of the responding planners. The inclusion of school plant as a minor area was the first mention of this field.

TABLE 11

MASTER'S DEGREE MAJORS AND MINORS

Major	Number	Percent	Minor	Number	Percent
Educ. Adminis.	105	61.7	Educ. Adminis.	11	12.2
Education	29	17.0	Education	9	10.0
History	4	2.4	Social Science	8	8.8
Architecture	3	1.8	Curriculum	7	7.7
Educ. Psychology	3	1.8	Chemistry	5	5.5
Guidance	3	1.8	Guidance	4	4.4
Industrial Arts	3	1.8	Psychology	4	4.4
Mathematics	2	1.2	Economics	3	3.3
Music	2	1.2	Mathematics	3	3.3
Physical Education	2	1.2	Physical Education	3	3.3
			School Plant	3	3.3
			Sociology	3	3.3
			Supervision	3	3.3

Doctorate Degree.--Of the 102 specialists reporting doctoral majors, ninety-three (91.2 percent) reported educational administration as their major. The minor or cognate area varied nearly as much as on the master's level. There were twenty-three reported, the most common being sociology and guidance as indicated by Table 12.

Two planners reported a major in school plant and four reported school plant as a minor.

TABLE 12

DOCTORAL MAJORS AND MINORS OR COGNATES REPORTED

Major	Number	Percent	Minor	Number	Percent
Educ. Adminis.	93	91.2	Sociology	11	16.4
Education	3	2.9	Guidance	6	9.0
Higher Education	2	2.0	Social Science	5	7.5
School Plant	2	2.0	Curriculum	4	5.9
Pupil Personnel	1	1.0	Psychology	4	5.9
School Bus. Manage.	1	1.0	School Plant	4	5.9
			Business Adminis.	3	4.5
			Economics	3	4.5
			Higher Education	3	4.5
			History	3	4.5

School Plant Courses

One hundred thirty-two respondents (56.4 percent) reported having taken courses in school plant planning. Occasionally, a specialist would report finance or law as a course in school plant. These were not tabulated as school plant courses. Sixty-nine (29.5 percent) respondents had six semester hours or less of school plant courses; twenty-five (10.7 percent) had seven to nine semester hours, and thirty-eight (16.2 percent) had more than nine semester hours of school plant courses.

With 43.6 percent of the respondents reporting no courses taken in school plant, it is obvious that such courses are not necessary to hold a position in school plant planning. Further investigation would be necessary in order to determine any relationship between formal education in school plant and job performance. Table 13 shows the distribution of semester hours.

TABLE 13

SEMESTER HOURS OF SCHOOL PLANT COURSES

Semester Hours	Number of Specialists	Percent	Semester Hours	Number of Specialists	Percent
1	--	--	15	9	3.8
2	13	5.4	16	2	.8
3	21	9.0	17	--	--
4	4	1.7	18	4	1.7
5	1	.4	19	--	--
6	30	12.8	20	--	--
7	2	.8	21	2	.8
8	7	3.0	22	--	--
9	16	7.0	23	--	--
10	4	1.7	24	1	.4
11	2	.8	25	--	--
12	11	4.6	26	--	--
13	1	.4	27	--	--
14	1	.4	28	1	.4

Helpful Related Courses

In order to determine if there were related courses helpful to the school plant planner in his present position, the planners were asked to list any courses they felt were helpful. Of the fifty courses listed, the four most commonly mentioned were (1) finance, (2) administration, (3) school law and (4) sociology.

Table 14 shows all courses named three times or more and the frequency with which they were named.

TABLE 14

COURSES LISTED AS BEING HELPFUL IN THE POSITIONS NOW HELD BY THE SPECIALISTS

Name of Course	Frequency	Name of Course	Frequency
Finance	40	Statistics	6
Administration	25	Architecture*	5
School Law	21	Political Science	5
Sociology	15	Surveys	5
Psychology	8	Drafting/Mech. Drawing*	5
Business Administration	6	Government	3
Philosophy	6	History of Education	3
Public Relations	6	Maintenance	3
Research	6	Urban Planning	3

*Indicates being named by persons other than architects.

Experience Through Formal Education

This study sought to identify those experiences gained through formal education that were helpful to the planner. From a list of experiences, the respondents checked those they had experienced and those they felt they should have experienced. As indicated in Table

15, the most common experiences cited were (1) visiting buildings, (2) evaluating buildings, (3) visiting construction sites during construction, (4) evaluating sites, and (5) making enrollment projections.

The specialists also checked those items they felt they should have experienced through their formal education. The most commonly checked were --

1. Serving a part-time internship with a local school district in cooperation with a university.
2. Writing actual or hypothetical educational specifications.
3. Planning an actual or hypothetical bond issue.
4. Visit to a city planning section.
5. Making a land-use study.
6. Planning orientation activities for an actual or hypothetical building.

Over one-half of the respondents had some experience in determining the educational and/or building needs of a community.

The areas least experienced were those connected with insurance services, bond issues, dedication or orientation activities, and internships. These areas were cited frequently by the planners as experiences they should have had.

Table 16 on pages 22 and 23 shows the frequency of the responses to the items the planners felt they should have experienced.

TABLE 14

TYPES OF EXPERIENCES GAINED THROUGH FORMAL EDUCATION

Experiences	Architectural Firm	Public Schools	Private Colleges	Public Colleges	State Dept.	U.S. Office of Educ.	Other	Totals	Percent
Visit to buildings	9	57	8	46	45	5	11	178	78.0
Visit to state school planning section	5	32	5	24	21	4	3	74	32.5
Visit to city planning section	5	32	2	17	17	3	4	80	35.1
Visit to architect's ofc.	8	37	6	26	29		8	114	50.0
Visit to construction site during construction	10	47	7	37	33	5	8	147	64.4
Evaluating sites	8	45	7	41	32	4	10	147	64.4
Evaluating buildings	9	49	8	43	38	5	9	161	70.6
Study of building codes	9	33	5	27	19	2	6	101	44.3
Study of insurance services	4	23	3	18	14	1	2	65	28.5
Planning a construction schedule	6	26	2	21	16	2	3	76	33.3
Observing board actions on building problems	3	29	5	28	24	3	5	97	42.5
Making an enrollment projection	5	35	7	41	35	5	9	137	60.0
Making a land use study	9	33	4	23	16	3	9	97	42.5
Making a financial study of a community	3	29	6	33	25	3	7	106	46.5
Determining the educational needs of a community	4	33	6	33	29	3	8	121	53.1
Determining building needs of a community	5	38	5	38	30	4	8	128	56.1
Writing actual or hypothetical educational specif.	4	30	5	30	15	2	7	93	40.8
Planning an actual or hypothetical bond issue		21	5	17	15	2	4	64	28.1

TABLE 14 (Continued)

Experiences	Architectural Firm	Public Schools	Private Colleges	Public Colleges	State Dept.	U.S. Office of Educ.	Other	Totals	Percent
Planning an actual or hypothetical dedication ceremony or public relations activities	1	13	2	9	7	2	3	37	16.2
Planning orientation activities for an actual or hypothetical building	2	16	3	11	7	2	4	45	19.7
Serving a part-time internship with local school district in cooperation with a university		3	3	9	2	0	2	24	10.5
Serving a part-time internship with a state department of education in cooperation with a university	1	0	0	2	3	0	1	7	3.1
Total number responding in each category	10	73	8	52	60	7	18	228	

TABLE 15

TYPES OF EXPERIENCES PLANNERS FELT THEY SHOULD HAVE HAD THROUGH FORMAL EDUCATION

Experiences	Architectural Firm	Public Schools	Private Colleges	Public Colleges	State Dept.	U.S. Office of Educ.	Other	Totals	Percent
Visit to buildings	1	4		1	7	1		14	6.7
Visit to state school planning section	1	16		14	22	2		55	26.4
Visit to city planning section	1	18	3	18	21	3		64	30.8
Visit to architect's ofc.	1	13	1	11	16	1		43	20.7
Visit to construction site during construction	0	7		7	15	1		30	14.4
Evaluating sites	1	16	1	8	19	2		47	22.6
Evaluating buildings	1	9		5	13	1		29	13.9
Study of building codes	1	16	1	9	24	4		54	25.9
Study of insurance services	3	17	1	10	25	5		61	29.3
Planning a construction schedule	2	22	3		22	4		62	29.8
Observing board actions on building problems	2	20		9	16	3		50	24.0
Making an enrollment projection	1	18	1	4	18	1		43	20.7
Making a land use study	1	18	3	10	28	3		63	30.3
Making a financial study of a community	3	17	2	4	21	3		50	24.0
Determining the educational needs of a community	3	18	1	7	22	3		54	25.9
Determining building needs of a community	3	18		6	20	2		49	23.5
Writing actual or hypothetical educational specif.	3	22	3	17	31	4		80	38.4
Planning an actual or hypothetical bond issue	3	20	1	17	24	4		69	33.2

TABLE 15 (Continued)

Experiences	Architectural Firm	Public Schools	Private Colleges	Public Colleges	State Dept.	U.S. Office of Educ.	Other	Totals	Percent
Planning an actual or hypothetical dedication ceremony or public relations activities	1	16	2	8	14	3		44	21.1
Planning orientation activities for an actual or hypothetical building	1	21	3	16	18	4		63	30.3
Serving a part-time internship with local school district in cooperation with a university	2	27	3	19	26	3		88	38.4
Serving a part-time internship with a state department of education in cooperation with a university	2.	16	1	13	24	3		49	23.5
Total number responding in each category	8	73	9	52	59	7		208	

Formal Training in Curriculum

The literature is clear that educational facilities should be an integral part of the educational program, so much so that some planners have described the facilities as being a teaching tool. The curriculum has been defined ". . . in terms of the quality of pupil experiences in the school environment . . . . as experiences which the pupils undergo within the culture of the school . . . ."[14] It would seem to follow that the planner should have at least some exposure to curriculum in his formal education. Table 17 shows the number who had formal curriculum education and the types of curriculum areas.

TABLE 17

FORMAL EDUCATION IN CURRICULUM

Curriculum Areas	Yes		No	
	Number	Percent	Number	Percent
Elementary Curriculum	155	66.2	79	33.8
Secondary Curriculum	183	78.1	51	21.9
Curriculum Construction	147	62.8	87	37.2
Leadership in Curriculum	106	45.3	128	54.7
Improvement of Curriculum	131	56.0	103	44.0
Other	29	12.4	205	87.6

Specialized areas such as higher education, core curriculum, engineering, etc., made up the twenty-nine responses other than the first five listed in Table 17.

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[14] Vernon E. Anderson, Principles and Procedures of Curriculum Improvement, 2nd ed., (New York: Ronald Press Co., 1965), p. 6.

Of those holding the doctorate, one hundred percent had had secondary curriculum and ninety-one percent had had elementary curriculum. Those concerned with architectural or engineering responsibilities had the least formal education in curriculum.

It was of interest to note that the lowest percentage of specialists who had had formal training in curriculum were those employed by the public schools and architectural firms. This would be expected in the architectural firms, and the number of engineers employed by the public schools might account for the lower percentage there. Fewer than half (47.9 percent) of the public school employees had training in elementary curriculum, while 72.6 percent had had secondary curriculum.

Summary

This chapter presented the personal data and educational background of the school plant planner. The respondents seemed to be representative of the total sample by years of experience and type of position.

Personal Data

1. The largest age group of specialists (58.1 percent) were between forty and fifty-nine years of age. The range was quite broad, being from twenty-nine to eighty-one years of age. The median age for entering the field of school plant planning was thirty-seven.

2. Generally, each respondent belonged to several professional organizations.

3. Thirty-seven percent of the respondents held an administrative certificate. Nearly thirty percent did notreply to this item or indicated that they held no certificate. A few indicated that their doctoral degrees were sufficient in their state.

Educational Background

1. The results of the study were consistent with the literature in that the great majority of the school plant planners were educated as educational administrators. Over seventy-nine percent of the respondents held the master's degree or higher. Of these, more than sixty-one percent majored in educational administration at the master's level and more than ninety-one percent did so at the doctoral level. There was no discernible pattern of minors or cognate areas.

2. Almost forty-two percent of the respondents were educated at eleven institutions which comprised only 13.4 percent of the eighty-two institutions listed.

3. Fifty-six percent of the respondents reported having had a course in school plant. Forty-two percent had over three semester hours in school plant.

4. Finance, administration, and school law were cited by the respondents as being related courses most helpful to their present position.

5. Fewer public school district employees had had curriculum training than might seem desirable. The college-employed group showed

the highest percentage (above ninety percent) and this group would be functioning in the capacity of educational consultants relating program to plant more than a number of public school planners involved in engineering responsibilities.

Most of the respondents' experiences through formal education centered around visiting and evaluating buildings and sites. Slightly over half had had some experiences in determining the educational and building needs of a community.

The areas least experienced were those connected with insurance services, dedication and orientation activities, and internships with local school districts or state departments of education.

CHAPTER III

EXPERIENTIAL BACKGROUNDS AND PRESENT POSITIONS

Introduction

This chapter reviews the literature pertinent to the experiential backgrounds of school plant specialists and the various positions usually associated with school plant planning. Data relative to these areas are reported.

Review of the Literature

Experiential Background

Concern for the type of experiential background of the school plant specialist was expressed as early as 1927.[1] At this time it was suggested that he should have school experience. Chase outlined the range of responsibilities that the school plant specialist might encounter and stated that these responsibilities imply ". . . that certain types of formal training and experiences are essential . . ."[2]

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[1] Minutes of the Annual Meeting, October, 1927, National Council on Schoolhouse Construction, East Lansing, Michigan (in the files of the Council), p.42.

[2] National Council on Schoolhouse Construction, Proceedings of the Forty-first Annual Meeting (Houston, Texas, 1964), p. 51.

Welsh[3] indicated that such necessary experience must be obtained in the field rather than in the college classroom. Womack[4] suggested that the educational facilities planner needs field experience in conferring with faculties and administrators and writing educational specifications.

The literature agrees that the school plant planner will be working with individuals and occasionally with groups of individuals. This would imply that he should have pre-service experience in such activity.

There is general agreement that the planner should be concerned with the relation of the educational program to the physical plant. Cooper stated that "the school building does not merely _house_ an educational program; it is an integral part of that program."[5] Herrick warned that " . . . the educational planner must function as an educator and not as an architect or quasi-architect."[6] Thus, an implication emerges that at least part of the school plant planner's experiential background should be in education.

There are other specialists that the literature discussed as being important in planning educational facilities. Some of these specialists are primarily concerned with a specific technical phase of the overall planning process such as engineers specializing in heating, lighting or acoustics, or urban planners familiar with zoning patterns and trends. It is obvious that these specialists should have experiential backgrounds different from the educational facilities planner. Each of their backgrounds should be suited particularly to their specialty.

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[3] _Ibid._, p. 55.

[4] _Ibid._, p. 62.

[5] Leo E. Buehring,"Why School Planners Must be Educators," _The Nation's Schools_, Vol. 68, No. 6 (Dec., 1961), p. 67.

[6] J. H. Herrick, _et. al._, _From School Program to School Plant_ (New York: Henry Holt & Co., 1956), p. 132.

Present Positions

History

The need for school plant specialists has been in evidence for a number of years. However, in planning buildings to meet educational needs, Englehardt pointed out that from 1880-1900 buildings admired for their architecture were frequently duplicated in other parts of the country with no thought for adaptation to educational needs. "In the decades following 1900, the school survey movement, with its analysis of the educational plant, brought to light the many defects which were being incorporated in school buildings."[7] Giddis[8] traced the history of the survey movement, including surveys as early as 1831; however, he cited the Boise,Idaho survey of 1910 as the beginning of the survey movement. The educational program and buildings needs were major parts of these studies. From such a movement came those individuals competent in survey techniques.

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[7] N. L. Englehardt, "The Educational Consultant in School-Building Planning," American School and University (New York: American School Publishing Corp., 1931), p. 15.

[8] W. J. Giddis, "A Study of the Methods and Procedures Used in the School Survey Studies at Michigan State University and Other Publicly Supported Big Ten Universities" (unpublished Ed.D. dissertation, College of Education, Michigan State University, 1964), pp. 1-10.

State departments of education and legislatures became interested in school plant at the early part of the Twentieth Century. Cubberley stated that by 1915 three states had enacted school building laws, and within seven years seven more states followed.[9] In order to provide aid to school districts, state departments added school plant specialists to their staffs. In 1946, Hamon stated, "About half of the state departments of education maintain school plant services to review locations and plans, to assure that state codes and regulations have been met, and to provide consultive services to local school administrators, boards of education, and architects."[10]

College or university-connected consultants are mentioned as being important to districts in planning a building or a building program. By 1930, the retaining of such educational consultants was looked upon as a growing practice.[11] Hopper and Leu cited three types of consultants available to local school districts: (1) college and university, (2) architectural firm, and (3) private consulting firm.[12]

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[9] Elwood P. Cubberley, State School Administration (New York: Houghton Mifflin Co., 1927), pp. 522-23.

[10] Ray L. Hamon, "Planning the School Plant Program," American School and University (New York: American School Publishing Corp., 1946), p. 22.

[11] J. H. Hixson, "Matters of First Importance in Initiating a School-Building Program," American School and University, Vol. 27 (New York: American School Publishing Corp., 1930), p. 21.

[12] R. L. Hopper and D. J. Leu, "School Plant Consultive Services for the Local School District," American School and University (New York: American School Publishing Corp., 1955), p. 153.

Gunther cited those individuals who could offer part-time assistance who were connected with a university or another local district.[13]

School plant specialists are also hired by local school districts on a full-time basis. Hamon wrote:

> Many of the larger local school administrative units include on their professional staffs school plant specialists or educational plant consultants whose functions are to study educational housing needs and to coordinate the plant requirements of the different areas and departments into a total and continuous plant program. This type of service is very valuable and should be provided in administrative units contemplating extensive programs of school construction.[14]

The superintendent of schools usually finds it necessary to delegate most of his plant planning responsibilities to administrative assistants.[15] This position is often a superintendent or assistant superintendent in charge of buildings and grounds.[16]

Involvement of People in the Planning Process

The school plant specialist, regardless of the narrowness of his contribution, will be involved with other individuals in adequately carrying out his assignment. The planner who is responsible for coordinating and carrying out parts of the planning program is involved with many individuals and groups.

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[13] Carl F. Gunther, "Educational Consultants-Their Functions and Work," American School and University, Vol. 27 (New York: American School Publishing Corp., 1954), p. 113.

[14] Hamon, loc. cit.

[15] National Council on Schoolhouse Construction, N.C.S.C. Guide for Planning School Plants (East Lansing, Michigan: National Council on Schoolhouse Construction, 1964), p. 4.

[16] "New Patterns in Educational Staffing," Overview, Vol. 1, No. 11 (November, 1960), 53-54.

Other Specialists.--The literature generally agrees that the school plant planner will be involved with specialists to help him make recommendations to the executive officer of the board of control. The most obvious would be the architect. "He assists the architect by interpreting the prepared educational specifications and evaluating schemes in terms of educational requirements."[17] He would confer with curriculum specialists, city and regional planners, state and local agency personnel having regulatory functions, any outside consultants, as well as many others who might give assistance in a survey of technical advice on a particular problem.

The School Staff.--

> After World War II, educational executives, teachers, pupils, and custodians began to voice their needs and wishes when new schools were contemplated . . . . Then a team approach to school plant planning came into play which brought together the talents and the technical skills of various people for the common good of producing good schools. This excellent procedure has proved itself well over the past ten years. . . .[18]

The staff is involved in educational planning, the development of the educational specifications, and ". . . should have the opportunity to review schematic, preliminary and final plans and to comment on what they believe to be good and bad features."[19]

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[17] Gunther, op. cit., p. 116.

[18] Basil Castaldi, "New Dimensions in Plant Planning," Overview, Vol. 3, No. 1 (January, 1962), 44-45.

[19] N.C.S.C. Guide for Planning School Plants, loc. cit.

The school plant planner will also be involved with the staff in orienting those who will be using the facilities and in evaluating those facilities after they have been used for sometime.

Lay Citizens.--The involvement of lay citizens in planning school buildings seems to be increasing.[20] The school plant planner could be involved with lay citizens in surveys, educational planning, and in planning specific buildings. Herrick pointed out that such involvement is a valuable device for gaining public interest in school building problems and in gaining support for school improvements.[21] Another publication[22] cited citizen involvement as resulting in greater continuity of educational program and plans.

Pupils.--

> Although pupils have seldom participated substantially in the planning process, their unique position of being recipients of education should not be overlooked. Their participation in evaluation of the existing program and buildings can shed some light on strengths and weaknesses not readily apparent to adults. Similarly, their suggestions concerning new building facilities can be most helpful.[23]

The above statement implies that the planner, if he is not already, should be involved with pupils as well as other individuals or groups.

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[20] Thomas J. Terjeson, "An Analysis of School-Plant Planning," American School Board Journal, Vol. 148, No. 1 (January, 1964), 10.

[21] Herrick, op. cit., p. 143.

[22] American Association of School Administrators, Planning America's School Buildings, Report of AASA School Building Commission (Washington: American Association of School Administrators, 1960), p. 89.

[23] N.C.S.C. Guide for Planning School Plants, loc. cit.

Areas of Responsibility of the School Plant Specialist

The areas of responsibility vary probably as much as there are different positions, and the tasks within these areas could vary with the position, according to the backgrounds of those with whom the specialist works, and many other variables.

Chase suggested the following areas of responsibility and activities of the school plant specialist:

1. School plant surveys and procedures
   a. Coordinates all phases of the survey
   b. Conducts the survey in person
   c. Advises all survey participants as to techniques
   d. Selects specialized techniques to fit specific situations
      1) Analyzing educational program
      2) Forecasting enrollments
      3) Estimating building capacities and utilization
      4) Evaluating financial ability and effort
   e. Formulates recommendations in accordance with sound practices and procedures
   f. Interprets survey to the superintendent, board of education, and to the public

2. Functional planning and facilities design
   a. Develops procedures for planning
   b. Serves as liaison between planning committees or groups and the school administration
   c. Submits periodic progress reports to administration
   d. Determines what the educational program requirements and philosophy of the locality are.
   e. Knows the rules, regulations, codes,and board policies
   f. Determines space, facility, and service needs
   g. Recommends furniture and equipment most suitable for each program

3. Development of educational specifications
   Prepares a written description of the educational program to be housed, based on the philosophy, aims, and objectives of the locality. This includes:
   a. Regular and special course offerings
   b. Space requirements and relationships
   c. Auxiliary services to be provided
   d. Teaching staff and methods
   e. Numbers of pupils to be served
   f. Special needs

4. Public relations programs
    a. Interprets the immediate and long-range program and building needs to the public
    b. Provides periodic press releases during the building planning program
    c. Arranges publicity during bond campaigns
    d. Prepares for the dedication of the completed building and orientation of the staff and public

5. Site selection, development, and utilization
    a. Sets up criteria for site selection, layouts, and development
    b. Makes spot maps of pupil residences
    c. Advises on legal aspects of acquiring land

6. Capital outlay and financing programs
    a. Recommends methods of financing the construction program
    b. Determines the sources of construction funds at the local, state, and national levels
    c. Plans bond campaigns

7. Financial management of the construction budget
    a. Prepares construction budget
    b. Establishes business procedures and methods of accounting for funds
    c. Authorizes payments to contractors periodically
    d. Institutes financial safeguards

8. Study of building costs and economies
    a. Establishes criteria and variables for estimating construction costs
    b. Determines economies of planning

9. Contractual procedures
    a. Determines legal requirements for approval of plans, letting of bids, and awarding of contracts
    b. Aids in the selection of the architect and establishes working relationships with him, contractors and others
    c. Helps to determine qualifications of bidders
    d. Recommends awarding of contracts

10. Building construction program
    a. Supervises construction (clerk of the works)
    b. Controls change orders in final plans

11. Furniture and equipment selection and purchasing
    a. Sets up criteria for selection of furniture and equipment
    b. Specifies and advertises for bids for purchase
    c. Adapts policies and programs of repair and replacement of furniture and equipment

12. School plant management
    a. Arranges for plant maintenance and operation
    b. Sets up costodial schedules and staffing
    c. Conducts in-service training programs for custodial and maintenance staffs
    d. Adapts school protection and safety practices
    e. Arranges insurance programs and schedules[24]

In addition to the above, the following responsibilities have also been mentioned as being within the range of the educational facilities consultant:

1. Determine whether to modernize or abandon old buildings.[25]

2. Provide action research on problems, and evaluate controversial issues in terms of present needs.[26]

3. Development and arrangement of various technical spaces such as science rooms, music, shops, etc.[27]

4. Discuss and plan with the architect the interpretation of the educational specifications.[28]

5. Study and analyze architects' drawings as to educational operation and adequacy.[29]

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[24] Proceedings of the Forty-first Annual Meeting (1964), pp. 50-51.

[25] Hopper and Leu, op. cit., p. 154.

[26] Ibid., p. 155.

[27] Ibid.

[28] C. G. Sargent and D. P. Mitchell, "Consultive Services Required in Planning School Buildings," American School and University (New York: American School Publishing Corp., 1955), p. 152.

[29] Ibid.

In no instance did the literature infer that one school plant specialist would, or even could, carry out all these tasks. Mention was made on occasion that the planner should be able to assist in procuring the services of technicians when these skills are needed; thereby inferring ability to recognize problems and solutions.

Administrative Relationships

The literature was surveyed to find what administrative relationships were usually found around the position of the school plant specialist. These relationships, like the tasks, vary with each position. However, the literature was consistent as to the relationship between the superintendent and the educational consultant.

The N.C.S.C. Guide summed up the superintendent's position.

> The superintendent occupies a key role in the total planning process relating to the educational plan and school plant program. As chief executive officer of the board of education, he issues all requests, reports and accommodations to the board.[30]

The educational consultant is usually found in a staff relationship with all individuals and groups except in cases where he is an employee of the school district and has line authority over other district employees. Herrick diagrammed these relationships as indicated in Figure 1.[31]

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[30] N.C.S.C. Guide for Planning School Plants, loc. cit.

[31] Herrick, op. cit., p. 17.

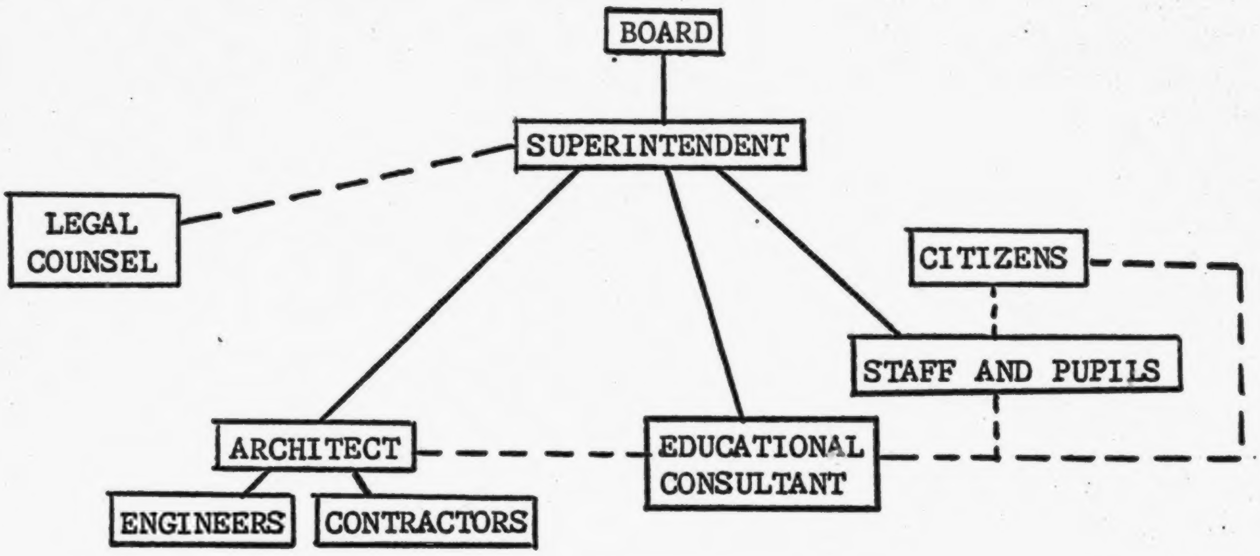
BOARD
SUPERINTENDENT
LEGAL COUNSEL
CITIZENS
STAFF AND PUPILS
ARCHITECT
EDUCATIONAL CONSULTANT
ENGINEERS
CONTRACTORS

FIGURE 1

ADMINISTRATIVE AND ADVISORY RELATIONSHIPS IN THE PLANNING PROCESS

Summary

1. There are many kinds of school plant specialists; however, the school plant planner who is primarily interested in the relation of the educational program to the facilities has been in evidence only within the last fifty to sixty years. The literature indicates a growing need for the utilization of such a planner.

2. The school plant planner is usually involved with many individuals and groups of individuals in carrying out the planning process.

3. Generally the school plant planner is involved in two major areas of responsibility: (1) determination of general requirements for facilities and (2) development of educational specifications to insure functional character of specific facilities. In fulfilling these areas, and varying with the position held, the literature mentioned other areas that the school plant planner might be responsible for.

4. The school plant specialist is usually found in a staff relationship to those persons with whom he works in the planning process.

Report of Data

The following is a report of data from this study concerning the experiential backgrounds of and present positions held by the specialists responding to this study.

Experiential Backgrounds

The respondents were asked to check the types of experiences they had and the order in which they had them. The most commonly checked experience was teaching secondary school. The secondary principalship, state department of education, and college teaching were next in that order. The figures shown in Table 18 for elementary and secondary teaching overlap somewhat as thirty-five respondents had both kinds of experience. It was of interest to note that eighteen respondents had held a principalship without prior teaching experience.

Analysis of the data concerning order of positions indicated no clear pattern of entry into the present positions. The most commonly checked position immediately prior to the present position was the superintendency for present state department and college or university employees. The secondary principalship was next. There was no pattern for public school employees in general because of the very wide range of types of positions and backgrounds necessary to fill them. The pattern of those specialists concerned with the planning process was quite similar to college and governmental agency planners.

TABLE 18

EXPERIENTIAL BACKGROUND OF RESPONDENTS

	Hiring Institutions						
Types of Positions	Architectural Firm	Public Schools	College or Univ.	State Dept.	US Ofc. of Ed.	Other	Total
Administrator (College)		6	20	3	3	3	35
Architect	8	8	1	6	1		17
Designer	4	11		6	1	2	24
Draftsman	4	16	2	10	1	1	34
Engineer		15	1	5	1	4	24
Principal (Elementary)	1	14	23	21	3	6	68
Principal (Secondary)	2	16	34	26	4	5	87
State Dept. of Educ.	7	5	11	48	4	8	82
Superintendent	1	13	28	25	3	4	74
Superintendent (Ass't./ Business)		20	3	2		2	27
Superintendent (Ass't./ Curriculum)		5	2	2		1	10
Superintendent (Ass't./ Plant)		18	11	1	1	2	33
Supervisor of Instruc.		7	3	4	1	1	16
Teacher (College)	2	13	47	7	3	8	80
Teacher (Secondary)	2	42	45	36	3	11	139
Teacher (Elementary)	1	11	16	23	2	9	62
U.S. Ofc. of Educ.		3	3	3	6	1	16

Present Positions

The Hiring Institutions

The respondents were employed in the following types of institutions.

TABLE 19

HIRING INSTITUTIONS IN WHICH RESPONDENTS ARE EMPLOYED

Type of Institution	Number	Percentage
Architectural firm	10	4.2
Public school district	73	31.2
College or University	60	25.7
State Department of Education	60	25.7
U.S. Office of Education	7	3.0
Other	24	10.2
Totals	234	100.0

The student enrollments of the public school hiring institutions ranged from 2,000 to 1,300,000. Fifty (68.5 percent) of the public school plant specialists were employed in a district of less than 100,000 student enrollment, and fifteen (20.5 percent) were in districts of 100,001 to 200,000 enrollment. As indicated in Table 20, there is little pattern of distribution of specialists other than what would be expected to be the normal distribution of student enrollments except the very small districts. Seven of the respondents were employed by districts enrolling fewer than 6,000 students.

TABLE 20

NUMBER OF PLANT SPECIALISTS HIRED BY DISTRICTS ENROLLING FEWER THAN 100,000 STUDENTS

Enrollment	Number of Specialists	Enrollment	Number of Specialists
1-10,000	8	50,001-60,000	4
10,001-20,000	9	60,001-70,000	5
20,001-30,000	8	70,001-80,000	4
30,001-40,000	5	80,001-90,000	2
40,001-50,000	3	90,001-100,000	2
		Total	50

The enrollments of the colleges hiring school plant specialists varied from fewer than 2,000 to over 36,000. Again, no clear pattern was observed other than what would be expected to be the normal distribution of colleges having these enrollments with the exception of the very small institutions.

TABLE 21

NUMBER OF PLANT SPECIALISTS HIRED BY COLLEGES OR UNIVERSITIES ACCORDING TO STUDENT ENROLLMENTS

Enrollment	Number of Specialists	Enrollment	Number of Specialists
1-2,000	2	20,001-22,000	-
2,001-4,000	6	22,001-24,000	1
4,001-6,000	7	24,001-26,000	2
6,001-8,000	8	26,001-28,000	1
8,001-10,000	3	28,001-30,000	-
10,001-12,000	7	30,001-32,000	-
12,001-14,000	4	32,001-34,000	2
14,001-16,000	5	34,001-36,000	3
16,001-18,000	2	36,001-38,000	2
18,001-20,000	2	no answer	3
		Total	60

Titles

Public Schools.--The variety of job titles was almost as great as the number of respondents in the public schools and colleges and universities. Of the seventy-three respondents hired by the public schools, only thirteen had a title the same as another. Appendix C, page 112, lists the forty different titles for public school specialists.

Such a wide variety comes about partially because of the differences in the administrative structures between districts. The most frequently cited title was that of Director, shared by twenty-one respondents. There were seven variations of this title.

The next most frequently cited title was that of Assistant Superintendent. Thirteen respondents showed nine variations of this title.

College and University.--The sixty respondents had thirty-one different titles. Most of the variation was found in the titles of those who had administrative responsibility in their college. As would be expected, the most common title was one describing academic rank (Professor, Associate Professor, or Assistant Professor of Education) held by sixteen respondents. These ranks in Educational Administration were held by twelve respondents.

Government Agencies.--The most common titles in state departments of education or the U.S. Office of Education, Director (13); Consultant (11); Specialist (7); and Supervisor (5).

Responsibility Patterns

The respondents were asked to indicate to whom they were responsible. In the governmental agencies the pattern followed the governmental hierarchy and the respondents were responsible to the chief of their division or if chief, to an assistant state superintendent.

On the college level, the respondents were generally responsible either to the department chairman or dean of their college.

TABLE 22

OFFICES TO WHICH PUBLIC SCHOOL SPECIALISTS WERE RESPONSIBLE

Office	Number of Specialists	Percent
Superintendent	43	59.0
Assistant Superintendent	7	9.6
Assistant Superintendent/Business	6	8.2
Deputy Superintendent	2	2.7
Director	6	8.2
Board	4	5.4
No reply	5	6.9
Total	73	100.0

The public school employees followed closely the pattern outlined by the literature. Forty-three (59 percent) were directly responsible to the superintendent of schools and fifteen (20.5 percent) were responsible to an assistant or deputy superintendent as indicated in Table 23. As the size of the district increased,and hence the complexity of the administrative organization, the specialist was more likely to be directly responsible to someone other than the superintendent of schools.

TABLE 23

NUMBER OF EMPLOYEES RESPONSIBLE TO RESPONDENTS

Number of Employees	Number of Specialists	Number of Employees	Number of Specialists
1-9	20	60-69	-
10-19	8	70-79	2
20-29	1	80-89	-
30-39	1	90-99	2
40-49	-	100-199	4
50-59	2	over 200	14

The respondents were also asked to indicate those positions responsible to them. In most instances, those positions were technical assistants or supervisors of non-instructional personnel. Twenty of the respondents had nine or fewer persons responsible to them. According to the responses to the questionnaire, there were fourteen respondents who were in charge of from 207 to more than 28,000 employees. Five were in charge of over 1,100 employees.

Allocation of Time

Approximately one-fourth of the respondents spend over forty hours per week and 13.7 percent spend between thirty-six and forty hours per week in the field of school plant planning. Over half of the respondents spend thirty hours or less per week.

TABLE 24

AMOUNT OF TIME SPENT PER WEEK IN THE FIELD OF SCHOOL PLANT PLANNING BY RESPONDENTS

Hours per Week	Number of Specialists	Percent	Hours per Week	Number of Specialists	Percent
0-5	21	9.0	26-30	13	5.6
6-10	36	15.4	31-35	9	3.7
11-15	17	7.3	36-40	32	13.6
16-20	21	9.0	41-45 or over	55	23.5
21-25	13	5.6	no response	17	7.3

If the respondents were not full-time school plant planners, they were asked to indicate what responsibilities they had other than school plant planning. The additional responsibility most frequently cited was that of administrative duties.

Public School Employees.--Twenty-one respondents (28.9 percent) cited general administrative duties and sixteen (21.9 percent) cited administration of maintenance and operation as additional responsibilities. It was interesting to note that some respondents did not consider public relations, maintenance or operations as part of the field of school plant planning.

College or University Employees.--Thirty-one respondents (51.7 percent) cited teaching classes and thirteen (21.7 percent) cited administrative duties as responsibilities additional to working in the field of school plant planning.

Governmental Agencies.--The greatest percentage of full-time school plant specialists was found in the state departments of education - sixty percent. Once again, the category of administrative duties was cited by 18.3 percent as additional to school plant planning activities. Consulting on other problems in the area of state-local relations was the next most frequently mentioned responsibility.

Tasks Performed by Respondents

The tasks performed varied as to the type of hiring institution which employed the specialist. However, there were certain tasks that were usually performed by the specialist regardless of hiring institution. The most common was that of conferring with boards and administrators, followed by conferring with architects, lay citizen groups, and site selection.

Naturally, a greater percentage of college and university employed specialists were involved in teaching classes and counseling advisees more than any other group, although as indicated in Table 25, a few in each category performed these tasks. Such activity was usually a dual appointment with a college.

Only 51.8 percent of the respondents wrote educational specifications. A higher percentage (71.6 percent) of college personnel wrote educational specifications while only 28.6 percent of the governmental agency employees did so. This can be explained by the fact that a greater percentage of the college personnel are educators.

It was of interest to note that over one-half of the public school employees indicated that they designed buildings.

The respondents were also asked to indicate the two tasks which took up the greatest portion of their time. The tasks most consistently mentioned by the total group were (1) conferring with boards and administrators and (2) conferring with architects.

Public School.--Only one public school employee spent the greatest portion of his time conducting school surveys although 68.5 percent of them performed this task. Following conferring with boards, administrators and architects, the respondents in the public school districts mentioned (1) administrative duties concerned with maintenance and business management, (2) consulting concerning maintenance, and (3) designing buildings.

TABLE 25

TASKS PERFORMED BY RESPONDENTS BY TYPE OF HIRING INSTITUTION

Tasks	Architectural Firm	College or University	Local District	Federal or State	Other	Totals	Percentage
Teaching classes	2	51	7	3	4	67	30.4
Writing educational specifications	4	43	44	18	5	114	51.8
Writing professional articles	5	44	29	30	6	114	51.8
Writing survey reports	3	49	40	42	9	143	65.0
Conferring with boards and administrators	8	55	67	61	11	202	91.8
Conferring with lay citizen groups	8	48	53	47	7	163	74.1
Conducting school surveys	5	48	50	46	7	156	70.9
Counseling advisees	1	39	16	22	4	82	37.3
Directing research projects	3	40	33	15	4	95	43.2
Designing buildings	8	8	40	10	5	71	32.3
Site selection	7	39	63	47	7	163	74.1
Negotiating for sites	1	3	38	3	2	47	21.4
Projecting population growth	1	42	38	36	5	122	55.4
Consulting re: Maintenance	4	30	56	30	5	125	56.8
Consulting re: Financing Buildings	4	36	40	37	6	123	55.9
Consulting re: Equipment & Furniture	4	32	52	30	5	123	55.9
Consulting re: Building Codes	5	13	40	30	7	95	43.2
Conferring with architects	5	38	64	52	9	168	76.3
Other		11	13	19	5	48	21.8
Total responding	8	60	73	63	16	220	100.0

Colleges and Universities.--Corresponding with Table 25, the specialists in these hiring institutions found teaching classes as being the most time consuming task. Conducting school surveys, conferring with boards and administrators, and writing educational specifications followed in that order.

Governmental Agencies.--The tasks taking the most time of the specialists in governmental agencies were (1) conferring with boards and administrators; (2) conducting school surveys; (3) writing survey reports; and (4) conferring with architects. An area mentioned that was almost unique to this group, as far as time consumption is concerned, was that of consulting concerning financing the building program.

Tasks Found to be Difficult

This item was limited to tasks that were difficult because of lack of training and/or experience. Nevertheless, some respondents' comments indicated that some of the listed tasks are difficult for such reasons as lack of time or funds. The public school employees accounted for most of those indicating difficulty in conducting school district surveys. The public school and governmental agency employees experienced difficulty writing educational specifications which was the most frequently cited difficult task. The college employees most frequently cited consulting concerning building codes as being difficult because of a lack of training. It surprised the writer that the college consultants would be expected to work in this area rather than architects or governmental agency representatives. College and governmental employees had difficulty consulting concerning maintenance.

Public school and governmental agency specialists found difficulty working with architects. Additional comments indicated that this was partly due to their inadequacy in interpreting drawings and blueprints adequately.

The respondents frequently indicated lack of both training and experience when citing a difficult task. Therefore, no total column appears in Table 26 in order to avoid distortion. In all cases except negotiating for sites, lack of training was cited most frequently.

Involvement

The findings of this study indicated that the school plant specialist is involved with many people and groups of people. The amount of involvement seemed to be in direct proportion to the amount of work done in conducting school surveys. As indicated in Table 27, the persons with whom the specialists interact least are the lay citizens. The persons most frequently mentioned as included under "Other" in Table 27 were governmental agency employees concerned with city or regional planning and/or regulatory functions.

TABLE 26

TASKS CITED AS DIFFICULT BECAUSE OF LACK OF TRAINING AND/OR EXPERIENCE

Type of Task	Difficult Because Lack of Experience	Difficult Because Lack of Training
Conducting school district surveys	8	11
Working with lay citizen groups	8	6
Working with school boards	3	3
Working with administrative staffs	2	4
Working with faculties	5	3
Working with architects	6	13
Writing educational specifications	18	29
Negotiating for sites	21	15
Selecting sites	5	5
Teaching classes in school plant planning	7	8
Advisee load	4	5
Directing research projects	13	23
Projecting pupil enrollments	8	13
Anticipating annexation problems re: buildings	8	8
Consulting re: Maintenance	16	26
Consulting re: Financing buildings	8	14
Consulting re: Building codes	10	31
Consulting re: Equipment & furniture	10	17
Other	4	3

TABLE 27

PERSONS WITH WHOM RESPONDENTS ARE USUALLY INVOLVED IN PLANNING A NEW FACILITY

Persons	Number of Specialists	Percent
Administrative	207	88.5
Faculty	131	56.0
Board of Control	168	71.8
Architect	180	76.9
Lay Citizens	94	40.2
Other	55	23.5

When asked if they saw any future changes in the pattern of involvement, seventy (29.9 percent) said "yes" and 142 (60.7 percent) said "no." Included in the latter group were those individuals who were not primarily concerned with the planning process. Of the seventy specialists who responded "yes," the greatest numbers cited more involvement for faculties and lay citizens. (It was interesting to note that the majority of the respondents who saw less involvement were from Canada.) Boards of education were cited most frequently as becoming less involved in the planning process.

Additional comments concerning change in the present pattern of involvement in planning centered mainly around three points:

(1) There will be increased involvement of municipal and state planning agencies. A few respondents indicated regulation of increasingly available funds would be responsible for this as well as a premium on total community planning.

(2) There will be greater emphasis upon research. The main sources for this research would be the colleges and universities and other research organizations dealing with building problems.

(3) The planning process will tend to become more exacting and the position of the planner more formalized. The use of educational specifications will increase.

TABLE 28

AREAS VIEWED BY RESPONDENTS AS BECOMING MORE OR LESS INVOLVED IN THE PLANNING PROCESS

Persons	More Involved		Less Involved	
	No. of Respondents	Percentage Seeing Change	No. of Respondents	Percentage Seeing Change
Administrators	25	35.6	6	8.6
Faculties	48	68.6	5	7.1
Boards of Control	11	15.7	11	15.7
Architects	21	30.0	2	2.8
Lay Citizens	41	58.6	5	7.1
Other	19	27.1	--	----

Professional Satisfaction

Over seventy-five percent responding expressed complete satisfaction concerning the professional aspects of their positions. The responses were fairly consistent from respondents in each of the hiring institutions. Nearly twenty percent (19.8 percent) expressed satisfaction but that they would desire a change in position. Further analysis revealed that the changes desired were generally as follows:

1. An extension of the same type of position or movement to greater responsibility in the same institution.
2. A change to college teaching.
3. A change to private consultant work.

Generally, the respondents wished to stay in the field of school plant planning. There were very few who wished to return to private business or to teach in a university in an area other than school plant.

Economic Satisfaction

Fifty percent of the respondents were fully satisfied with the economic status of their positions. However, as a few noted, this did not preclude acceptance of salary increases. Almost forty-three percent were partially satisfied. Further analysis showed the areas of dissatisfaction to be travel allowance and/or salary base, the former being mentioned most frequently. Table 29 shows the distribution of the salaries of the respondents. Those respondents indicating less than $6,000 income were part-time employees--two being half-time graduate students. The median salary falls in the $12,000-13,999 range. Because the last range was open-ended, it was not possible to compute the mean.

TABLE 29

INCOME RANGES OF RESPONDENTS

Salary Ranges	Architectural Firm	Public School	College or University	Governmental Agencies	Other	Total	Percent
Less than $6,000		1		1	1	3	1.4
$6,000-$7,999				3		3	1.4
$8,000-$9,999		4	3	20	2	29	13.2
$10,000-$11,999	1	11	8	12	1	33	15.0
$12,000-$13,999	1	24	12	17	3	57	25.9
$14,000-$15,999		7	22	7	3	39	17.7
$16,000-$17,999		14	10	2	1	27	12.2
$18,000-$19,999	2	1	1	1	1	6	2.8
$20,000 or over	2	8	8	2	3	23	10.4
Total						220	100.0

NOTE POOR STANDING OF GOVT. AGENCIES.

Summary

1. Those specialists employed by colleges and state departments of education usually followed the pattern of teacher, principal, superintendent, or other central office position, prior to entry into their present positions. There was no pattern of entry into the present positions held by local district plant specialists. Those primarily concerned with the planning process had experiential backgrounds similar to the pattern of college and governmental agency specialists.

2. Local district plant specialists were generally directly responsible to the superintendent of schools except those employees in districts large enough to have an educational facilities department or division.

3. The school plant planner usually works in a staff relationship with all individuals or groups involved in the planning process except the superintendent of schools.

4. The majority of respondents did not engage in school plant planning as a major portion of their position. Administration responsibilities usually take up part of their time or constitute a major portion of their responsibilities.

5. Regardless of type of hiring institution, the tasks most frequently mentioned by the school plant specialists as being part of their jobs were (a) conferring with boards and administrators (91.8 percent); (b) conferring with architects (76.3 percent); (c) conferring with lay citizens (74.1 percent) and (d) site selection (74.1 percent).

6. Tasks found to be difficult because of lack of training were in order of frequency cited: (a) consulting concerning building

codes; (b) writing educational specifications; (c) consulting concerning maintenance; and (d) directing research projects.

7. Tasks found to be difficult because of a lack of experience were (a) negotiating for sites; (b) writing educational specifications; (c) consulting concerning maintenance; and (d) directing research projects.

8. School plant specialists are usually involved with administrative personnel, architects, and boards of control. Fewer than one out of three respondents saw any change in the future in the pattern of involvement for planning new facilities. The ones who did forsee change cited greater involvement of faculties and lay citizens.

9. Ninety-five percent of the respondents expressed satisfaction with the professional aspects of their positions.

10. The median salary of the respondents fell in the $12,000 to $13,999 range. The most frequently mentioned areas of dissatisfaction were travel allowances and salary base.

CHAPTER IV

IDEALS

Introduction

The purpose of this chapter is to present the thinking of the respondents concerning the ideal programs to prepare them for their respective positions. As indicated in Chapter III, position responsibilities seem to vary almost as much as there are different positions. Also, the population of school plant specialists studied included architects, engineers and others whose primary responsibilities did not concern the total planning process for educational facilities. Therefore, it is conceded that it is most likely that a single program will not anticipate or prepare any individual for all the problems and responsibilities that may come his way. Nor is it the purpose of this chapter to prescribe one optimum program or sequence of experiences that will assure adequate competence for a specialist in the field of educational facilities. Such a purpose would be based on several false assumptions such as: (1) all individuals are alike and bring the same things to a program; (2) all individuals perceive an experience the same and gain the same benefits from courses and experiences; (3) the "average" thinking of a group indicates the one best way for all; and (4) learnings gained from courses and planned experiences are the only essential learnings for adequate preparation for entry into the field. As one respondent commented on the questionnaire, "The road to heaven will not be found through a sequence of courses or experiences." However, a direction, some general agreements and necessary elements might be indicated.

It is not intended that courses or planned, in-a-vacuum experiences substitute for or supplant working with real problems with responsibility weighing heavily on the learner's shoulders. Having the responsibility to solve real problems does not preclude guidance or learning resulting from such guidance. Hence, on-the-job training and externships were considered real possibilities.

With this stage setting, a report of the opinions expressed follows.

Educational Program

The respondents were asked to cite what they considered were ideal majors and minors at each degree level in terms of their present positions. On occasion a specialist would indicate that his present position was not primarily concerned with educational facilities, but that he had responded in terms of a prior position held that was so concerned.

Undergraduate Program

Majors

Architects and engineers generally cited architecture and/or engineering as ideal majors for their kinds of positions. Duplication of the specialists' actual undergraduate majors and the majors they cited as ideal occurred about sixty percent of the time. The total picture at this level was not just an expression of "what was good enough for me . . . ."

Education (general), engineering and architecture were most frequently mentioned as indicated on Table 30 which lists all responses made to this item. In each instance where education (general) is listed at all degree levels, the respondents did not specify an area in the field such as curriculum, psychology, etc.

TABLE 30

UNDERGRADUATE MAJORS CITED AS IDEAL

Major	Frequency Cited	Percent	Major	Frequency Cited	Percent
Education (general)	35	27.3	Mathematics	6	4.7
Architecture	13	10.2	Business	5	3.9
Engineering	12	9.3	Business Adminis.	5	3.9
Social Science	11	8.6	Arch. Engin.	5	3.9
A Teaching Area	10	7.8	Political Sci.	2	1.5
Science	9	7.0	Curriculum	1	.8
Industrial Arts	8	6.3	Economics	1	.8
English	6	4.7	Law	1	.8
Liberal Arts	6	4.7			

Over one-third of the specialists did not respond to this item, or would comment that the undergraduate major and minor were relatively unimportant. On occasion a respondent would indicate that the undergraduate training should provide a broad education over many fields.

Minors

The most frequently named minors were education (18.7 percent), mathematics (8.9 percent), and sociology (8.9 percent). However, there was no clear pattern. Again, it was often indicated that this area was relatively unimportant.

Master's Program

Majors

On the master's level there was a trend away from majors in architecture and engineering. Over four-fifths of the specialists responding to this item indicated some phase of education or educational administration as being ideal. Seventy-two percent of the respondents answered this item.

TABLE 31

MASTERS MAJORS CITED AS IDEAL

Major	Frequency Cited	Percent	Major	Frequency Cited	Percent
Educ. Adminis.	74	53.6	Finance	2	1.4
Education (general)	24	17.4	Indus. Arts	2	1.4
Curriculum	10	7.2	Psychology	2	1.4
Ed. Plant Plan.	6	4.3	Urban Planning	2	1.4
Architecture	5	3.6	Engineering	1	.7
Teaching Area	3	2.2	Social Studies	1	.7
Ed. Bus. Adminis.	4	2.9	Sociology	1	.7

As indicated in Table 31, educational administration was cited by over half the respondents to this question. A specialization in curriculum was indicated at this level by ten respondents. A major in architecture was cited by 2.9 percent of the respondents as compared with 10.2 percent at the baccalaureate level. Those citing architecture at the master's level had primarily architectural responsibilities.

Minor

Twenty-four minors were indicated. Table 32 shows nine of these which account for nearly seventy percent of the responses.

TABLE 32

MASTERS MINORS MOST FREQUENTLY CITED

Minor	Frequency Cited	Percent	Minor	Frequency Cited	Percent
Curriculum	10	8.9	Business	9	8.0
Finance	10	8.9	Education (general)	9	8.0
Administration	9	8.0	Sociology	8	7.1
Architecture	9	8.0	Educ. Plant	7	6.2
			Engineering	7	6.2

The list is almost a repetition of those areas indicated as majors. When the totals of the indicated majors and minors are combined, the three most frequently mentioned as being part of the ideal master's program are administration, education (general), and curriculum.

Doctorate

Majors

Once again, educational administration was cited by well over one-half of the respondents. Administration, plant planning and general education accounted for eighty-nine percent of the responses.

TABLE 33

DOCTORAL MAJORS CITED AS IDEAL

Major	Frequency Cited	Percent	Major	Frequency Cited	Percent
Educ. Adminis.	73	61.9	Higher Educ.	2	1.7
Plant Planning	20	16.9	Bonding	1	.9
Education (general)	12	10.2	Philosophy	1	.9
Business Adminis.	4	3.4	Subject Matter	1	.9
Curriculum	2	1.7			

Cognate Area

The respondents were asked to indicate the cognate area on the doctoral level which would be most helpful to them in their present positions. As indicated by Table 34, sociology, urban planning and architecture accounted for over seventy percent of the responses. There were twenty-four areas cited.

TABLE 34

COGNATE AREAS MOST FREQUENTLY CITED AS HELPFUL

Cognate	Frequency Cited	Percent	Cognate	Frequency Cited	Percent
Sociology	30	31.6	Political Sci.	8	8.4
Urban Planning	28	29.5	Administration	6	6.3
Architecture	10	10.5	Psychology	6	6.3
Business Adminis.	8	8.4			

A few respondents indicated that they had included some architecture or engineering, but did not intend that the educator should ever be tempted to design a school. Rather, the educator should be conversant with architectural and/or engineering terminology and problems.

Similar statements were made concerning the minor at the master's level.

Necessary Specialized Courses

The respondents were asked, "What specialized courses would you consider absolutely necessary for the school plant planner of the future?" Forty-seven courses were indicated. Courses in research techniques and reading blueprints followed closely those seventeen listed in Table 35.

TABLE 35

SPECIALIZED COURSES MOST FREQUENTLY CONSIDERED TO BE ABSOLUTELY NECESSARY FOR THE SCHOOL PLANNER OF THE FUTURE

Courses	Frequency Cited	Percent	Courses	Frequency Cited	Percent
Plant Planning	66	44.9	Business Adminis.	15	10.2
Finance	61	41.5	Public Relations	15	10.2
Curriculum	54	36.7	Design	15	10.2
Urban Planning	43	29.3	Engineering	14	9.5
Survey Techniques	28	19.1	Psychology	13	8.8
Educ. Adminis.	25	17.0	Construction	10	6.8
Law	25	17.0	Mainten. & Oper.	10	6.8
Sociology	21	14.3	Statistics	10	6.8
Architecture	16	10.9			

Urban planning was cited most frequently by public school and college specialists. Public relations and statistics were mainly concerns of the college specialists. Design was mainly a concern of the public school specialists; however, it must be remembered that a larger proportion of public school specialists than college specialists were architects or engineers. The public school specialists exclusively cited environmental control, mechanical systems and building codes.

The rest of the courses mentioned were fairly evenly divided among the public school, college, and governmental agency employees.

Additional Suggestions Concerning Program

The respondents were asked to make any additional suggestions concerning an ideal preparation program for a position similar to the ones they held. A few stated that the school plant specialist should be able to use statistics, read blueprints, write educational specifications, and have facility with the language of architecture. A majority of them indicated actual experience as completing the ideal program. Over one-half of those responding to this item cited an internship or on-the-job training as being ideal. Construction experience and participation in surveys of communities' needs were often cited. A more detailed analysis of experience and types of valuable experiences outside formal education and positions follows.

Optimum Experiential Backgrounds

As indicated earlier in this chapter, it is not the intent of this study to outline a rigid pattern for an individual to follow to assure him of success as a school plant specialist. However, to determine if there were any discernible agreements or guidelines, the respondents were asked to state the sequences of employment they felt would be most desirable for a person filling a position similar to theirs.

Desirable Employment Sequences

Nearly ninety percent (89.4 percent) of those responding to this item mentioned teaching, and 79.5 percent mentioned school administration. The responses were generally not as specific as hoped since the types of administrative experiences were often not specified. In instances where the type of administrative experience was not specified, it is reported as administrator (general). Only seven respondents indicated administrative experience without teaching experience. Seventy-four percent indicated the teaching-administration sequences as desirable prior to their present positions. This pattern was consistent for college and public school specialists and a slightly greater percentage for governmental agency specialists. The teacher-administrator sequence was cited by 27.3 percent of the respondents and the teacher-principal-superintendent sequence was cited by 19.7 percent. The third most frequently mentioned sequence was teacher-principal-central office administration, such as supervisor, curriculum coordinator, or assistant superintendent. The position of business manager or assistant superintendent for business were mentioned only three times. The superintendency was mentioned only twice by public school specialists.

Optimum Times in Positions

The respondents were asked to indicate what they felt would be the optimum amount of time to spend in those positions they indicated as being desirable experiences. As expected, a few respondents stated that this should vary with each individual. Some would indicate a range of time such as from three to five years. In such cases, the lower number of years was used in the tabulation. The usual spread was three years. Table 36 shows those positions for which five or more respondents cited optimum times. The numbers in each column indicate the number of respondents citing that number of years as optimum for the particular position named.

TABLE 36

OPTIMUM TIMES TO SPEND IN POSITIONS

	Years									
Position	1	2	3	4	5	6	7	8	9	10
Teacher	2	21	24	24	4	17	3			1
Administrator (gen'l)		6	21	2	9					
Principal		26	7	4	8	1				
Superintendent		6	8	6	10			1		3
Asst. Supt.	2	7	1	1	2					
Central Office	1	11	2		5					

Occasionally the respondent would state that the time he had indicated for teaching or principalship should include both elementary and secondary education. The most frequently cited amount of times were--(1) teaching - two or three years; (2) principalship - two years; (3) general administration - three years. The times indicated as optimum in the superintendency were rather evenly distributed among two through five years, the latter being most commonly cited.

Valuable Experiences Outside Formal Education or Positions

It was felt that school plant specialists could gain experiences outside formal education or positions that would be valuable to them in carrying out their responsibilities in planning educational facilities. Therefore, the respondents were asked to list such experiences.

The most frequently mentioned experiences were (1) participation in surveys of communities; needs and (2) working with an architectural firm. A majority of the experiences cited seemed to have one or two or both aims: (1) to increase understanding of construction planning and process and/or (2) to provide the experience of working with others in relating educational concepts and practices with the more technical aspects of educational facilities planning and operation.

TABLE 37

FREQUENTLY CITED VALUABLE EXPERIENCES

Experience	Frequency Cited	Experience	Frequency Cited
Community Surveys	50	Involvement with people in planning	19
Work with Architect	44	Writing Educ. Specif.	10
Construction Work	27	Curriculum Work	7
Working with a Planning Agency	25	Maintenance & Operation Responsibility	7
Internship	22		

Occasionally a respondent would cite an experience in his background such as selling school furniture, tax assessment, or working with a contractor preparing to bid on a school project.

Summary

From the above data, and that presented in previous chapters, general agreements can be reached as to educational objectives and certain elements of preparation for positions of school plant specialists. A number of specialists included in this study were not planners as defined earlier. Rather they were primarily concerned with architecture, engineering, maintenance operation, or business management. The ideal preparation for these specialists will be different from that of the person primarily interested in the planning of educational facilities, and particularly the relation of the educational program to the physical plant. The architect and engineer will have both educational backgrounds and positions centering around these areas. In the case of the educational business manager, he is usually concerned with the financial and legal aspects of the planning process and the costs of maintenance and operation. Therefore, his education will closely parallel that of other school administrators with an emphasis on business management. His ideal experiential background would include positions in teaching, and building or central office administration. Since the greatest number of respondents seemed to be primarily concerned with the planning process, a summary of the findings concerning the ideal educational and experiential backgrounds follows in more detail.

Ideal Educational Backgrounds

The general agreements concerning the ideal educational backgrounds for the school plant planner were as follows:

1. The planner must be an educator; therefore, his educational program should provide understandings in depth of the purposes of education and how the school attempts to realize these purposes.

2. The planner's educational background should provide social understanding.

3. His background should provide conversance with some of the technical aspects of his position so as to communicate effectively with architects, engineers and builders.

The respondents generally cited the following as ideal majors at the different degree levels:

Baccalaureate:--There was a variety of majors named and it seemed that it made little difference at this level.

Masters:--Educational administration or general education.

Doctorate:--Educational administration or educational facilities planning.

Sociology and urban planning were cited as most helpful cognates at the doctoral level. There were no clear patterns of minors at the other degree levels.

Specific courses most frequently mentioned were educational facilities planning, finance, curriculum, and urban or regional planning.

Ideal Experiential Backgrounds

The school plant planner's ideal experiential background was usually cited as teaching (two or three years); building or central office administration (two or three years); and the superintendency (two to five years). There were many variations on this theme;

however, there was a pattern of teaching and administrative experience in the school system that was considered ideal for the person specializing in plant planning.

Valuable experiences outside formal education and positions were experiences seemingly aimed to increase the planner's understanding of and ability to communicate with those individuals and groups with whom he would be involved in the planning process.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this study was to describe school plant specialists' educational and experiential backgrounds and their present positions. Underlying this objective was the purpose of providing information which might serve to stimulate further research concerning school plant personnel.

The procedure for conducting this study was carried out in three parts: (1) survey of the literature concerning the educational and experiential backgrounds of the school plant specialists; (2) pilot study to refine the questionnaire for gathering data; and (3) the collection and analysis of the data from the membership of the National Council on Schoolhouse Construction.

A summary of findings is presented at the end of Chapters II, III, and IV. After analysis of these findings, the supporting data, and the literature, certain conclusions were drawn. These conclusions are presented in the order in which the questions for which answers were sought were presented in Chapter I, and are in answer to these questions. Additional conclusions are also presented.

Conclusions

Concerning Education

Nearly forty-two percent of the respondents were educated at a relatively small percent of the institutions cited (13.4 percent). These respondents were educators and mainly concerned with the planning process, in short, they were school plant planners. There was no pattern of institutions found for those mainly concerned with architectural and/or engineering responsibilities. It is concluded that:

I. On the basis of the number of graduates, there is a limited number of institutions which are attended by a relatively large proporition of school plant planners.

II. There are no patterns of majors or minors on the baccalarueate level. However, at the master's and doctoral levels, planners are generally educated as school administrators. Sociology and urban planning are desirable minor or cognate areas at the graduate level.

III. Related courses helpful to the planner are finance, school law, sociology, administration, and curriculum.

IV. Certain agreements as to the results of the planners' educational programs seemed to be evident. They are--

A. The planner should be educated as an educator.

B. The planner should be familiar with various aspects of the educational program, particularly curriculum.

C. He should be knowledgeable of the skills for understanding and working with people.

D. He should be alerted to the problems society will probably be facing and be freed to think creatively about solutions which might be quite different from today's solutions. The educational program should not be geared to straight jacket the prospective planner into "trained incapacity."

V. Certain elements in the educational program emerged upon analysis of the data and literature. Some of them are, according to course labels, (1) finance; (2) sociology; (3) school law; (4) curriculum, and (5) urban or regional planning. In addition to these, the specialists expressed need for survey and research techniques and familiarity with architectural and construction media of communication such as technical language and blueprints.

VI. It is concluded that a trend is emerging toward a more specially educated and younger individual as a school plant planner.

From the data concerning optimum times to spend in certain positions, the individual would most likely have completed most of the suggested sequences by the time he was thirty-two to thirty-five years of age. The term "specially educated" does not refer to a narrowly defined program, but a program designed on the basis of individual interest and need to provide broad, basic understandings upon which the individual can add specific techniques and knowledge.

Concerning Experience

From an analysis of the data concerning positions held prior to present positions and data concerning desirable sequences of experience cited by the respondents, it can be concluded that:

I. Plant specialists primarily concerned with the planning process have found and expressed as desirable the experience sequence of teacher, principal, and superintendent or other central office position.

II. Generally, the respondents did not see value in spending over five years in any of these positions, and in most cases, only two or three years.

III. The administrative experience should be applicable to the specialty of the plant specialist. For example, business management experience might be useful to the specialist concerned with the financial aspects of school plant; administration of non-certified personnel might be helpful to the person concerned with maintenance and operation; or a building principalship and/or a central office position concerned with curriculum might be meaningful for the planner who is concerned that the physical facilities are planned according to the educational program and not vice versa.

IV. Field experiences with buildings, sites, and community surveys are of value to the school planner. An internship that provided wide experiences and involvement with people in the planning process would be an experience of value to the planner.

Concerning Position

I. There is no identifiable relation between job titles and positions.

II. The public school planner is usually directly responsible to the superintendent of schools. This varies with the size of the system in which he is employed. The larger the system, the more likely he will be responsible to someone other than the superintendent.

III. The public school planner usually works with individuals other than the superintendent in a staff relationship.

IV. Administrative duties usually take up part of the planner's time, and in some instances are his major responsibility.

Additional duties varied with almost every position. College and university planners found teaching to be most time consuming, while other respondents found conferring with boards of control and administrators most time consuming.

V. Writing educational specifications was the task most frequently cited as difficult. Public school plant specialists find conducting surveys and writing educational specifications and working with architects difficult. College specialists find difficulty consulting concerning building codes and maintenance. Governmental agency employees find difficulty consulting concerning maintenance and working with architects.

VI. The planner works most frequently with administrative personnel, architects, and boards of control. There seems to be a slight trend toward more involvement of faculty and citizens.

VII. The school plant specialist is satisfied with the professional aspects of his position and is generally satisfied with the economic aspects.

Problems Noted

During the course of surveying the literature and analyzing collected data, certain problem areas were noted.

Writing Educational Specifications Difficult

Throughout the literature, one of the more important aspects of planning a new facility is the writing of adequate, clear educational specifications. The literature also pointed out this area as being neglected by the majority of schools planning new buildings. Analysis of data revealed that the respondents cited the writing of educational specifications as difficult, particularly those specialists in the public schools. Thus, it seems to be a real problem not only with those districts without planners on their staffs, but with the professional planners as well. More needs to be known about the elements of planning for and writing educational specifications that are causing difficulty in their preparation. Why do the specialists have difficulty in this area and what steps could be taken to alleviate the problem?

Job Descriptions and Titles

The literature revealed that it is not a new idea that position titles generally are inadequate in describing the responsibilities and tasks involved in the position. The field of educational facilities planning is no exception. There was no discernible relationship between job titles and tasks performed.

Field Experience in Preparation Program

The respondents cited some form of field experience, usually internships or community surveys, as desirable in preparing for the field of school plant planning. The internship was also most frequently a desired program element. The inference was that the internship was not generally a part of the respondents' programs. Often the respondents commented that possible experiences in formal training were gained only after they had been on the job.

Therefore, there seems to be a problem in providing the kinds of pre-service experiences that will be meaningful to the planner.

Early Identification of Personnel

Admittedly going a bit beyond the data presented, yet inferring from it, it seemed that many of the respondents did not become planners by design, but rather "grew into" the position because of outside pressures or were simply assigned the task. The increasing need for planners, the trend toward younger people assuming these responsibilities, and the need to provide certain helpful experiences prior to entering the field seem to emphasize this problem. It appears to the writer that these experiences can best be provided throughout a total program of graduate study from the beginning of graduate study through completion of the doctorate.

Recruitment of Personnel

If the demand far outweighs the supply of school planners; if there is an increasing need for professional services that trained school plant planners can offer; and if the above cited problem of early identification exists, it appears that the profession of planning educational facilities has a growing problem facing it. The problem has at least two facets: (1) placing the need for such positions and personnel before the public and (2) recruiting of desirable personnel to educate for those positions.

Lack of Certification

Analysis of the data showed no certification of school plant personnel per se. If this is a separate field requiring specialized education and skills, the lack of any particular certification or professional registration would appear as a problem the profession should face.

Recommendations

Analysis of the data and survey of the literature raised as many or more questions than the study originally attempted to answer. Following are recommendations for further study.

I. Careful study should be carried out to determine possible positive and negative effects of professional registration or certification of school plant planners, and to determine possible areas of cooperative action between professional organizations that have mutual concerns about the field and personnel of school plant planning.

II. Detailed job analyses need to be studied to make specific recommendations concerning both pre-service and in-service educational programs.

III. Study of the relationships between pre-service experiences, such as internships and community survey work, and successful job performance needs to be conducted. If such study reveals an important, positive relationship, the following recommendation would be in order.

IV. Investigation should be carried out to determine cooperative action between professional organizations and institutions to provide these pre-service experiences.

V. Further research should be conducted concerning the educational background of the planner in terms of the general agreements and elements noted earlier in this chapter. For example: (1) There should be an exploration of the worth of providing more school plant courses designed for the specialist in school plant; (2) How well do the specialists integrate the specialized aspects of their preparation programs into meaningful behavior in the total planning process? How can the planner avoid becoming compartmentally specialized? (3) Research techniques necessary to the total planning process need to be identified and incorporated into both the education and experience of the planning specialist.

VI. Further research is also recommended on the experiential backgrounds of planners to determine if the steps cited by the respondents in this study are necessary in successfully performing the tasks of the school plant planner.

VII. Study of the status of the profession of school plant planning should be carried out on a continuing basis to identify trends, strengths and weaknesses in order to strengthen a field charged with helping to provide the best possible environments for young and old alike.

Summary

This study was intended to provide information useful for further study and answer certain questions raised concerning the present status of school plant specialists in relation to their educational and experiential backgrounds and present positions. The study was a descriptive study and the data were presented in tabular form so that comparative research and research in depth that might be generated might be facilitated. Certain problems have been noted, and suggestions for further research and action have been made.

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APPENDIX A

SAMPLE COVER LETTER AND QUESTIONNAIRE

APPENDIX A

SAMPLE COVER LETTER AND QUESTIONNAIRE

MICHIGAN STATE UNIVERSITY East Lansing

College of Education

October 30, 1964

We are conducting a study of the educational facilities planner's educational and professional background in relation to his present position. Since the National Council on Schoolhouse Construction constitutes the largest professional organization of educational plant planners, we are asking the members of the Council to help with this study.

It is hoped that the information from such a study will not only be helpful to the Council, but will also be of value to those involved in the education of educational facilities planners and those entering the field or seeking more information about it. The pertinent results of the study will be reported to you in the N.C.S.C. Newsletter.

In order to carry out this study, we need your help. Please fill out the enclosed questionnaire and return it to us in the self-addressed, stamped envelope provided.

We appreciate your cooperation and help in this project.

Sincerely,

Floyd G. Parker
Secretary-Treasurer
N.C.S.C.

Thelbert L. Drake
Project Director

QUESTIONNAIRE

Information requested on this form will be treated confidentially. Please answer each item thoughtfully and accurately. Most items can be answered with a check, circle, or brief phrase, but additional comments are welcome.

PERSONAL DATA

1/1 _____Age
1/2 a.___Male
b.___Female
1/3 _____Age at which you first took a position in the field of school plant.
1/4 19___Year when you first took a position in the field of school plant.
1/5 Certificates and licenses held:______________________________
____
1/6 Check the number of those organizations to which you belong:
__X__1. N.C.S.C.
_____2. A.A.S.A.
_____3. A.I.A.
_____4. N.E.A.
_____5. Your state education association
_____6. Your state architects association
_____7. A.S.B.O.
_____8. A.S.C.D.
_____9. Phi Delta Kappa
____10. Other (Please specify)____________ ____________
____________ ____________

EDUCATIONAL BACKGROUND

2/1 Please check the number of the highest degree you hold.
_____1. Ph.D.
_____2. Ed.D.
_____3. Six-Year Diploma (or equivalent certificate)
_____4. M.A.
_____5. M.E.
_____6. A.B.or B.S.
_____7. B.E.
_____8. Non-degree
_____9. Other (Please specify)____________
2/2 University granting highest degree:____________________
2/3 Undergraduate major:____________ Minor:____________
2/4 Masters major:____________ Minor:____________
2/5 Doctoral major:____________________
Cognate area:*____________________
* Cognate area refers to a block of courses concentrating in a discipline other than your major field.
2/6 Type of institution granting degrees (e.g. private, technical, state,etc.):
a. Undergraduate:____________________
b. Masters degree:____________________
c. Doctorate:____________________

2/7 Names of courses taken in school plant planning:

________________________ Semester hours:__________

________________________ Semester hours:__________

________________________ Semester hours:__________

2/8 Please check those items which you experienced in your formal education. Also, indicate by checking in the second column those items you feel you should have experienced in your formal education in addition to those you did experience:

I HAD THESE	I SHOULD ALSO HAVE HAD THESE	EXPERIENCE
1.___	___	1. Visit to buildings.
2.___	___	2. Visit to state school planning section.
3.___	___	3. Visit to city planning section.
4.___	___	4. Visit to architect's office.
5.___	___	5. Visit to construction site during construction.
6.___	___	6. Evaluating sites.
7.___	___	7. Evaluating buildings
8.___	___	8. Study of building codes.
9.___	___	9. Study of insurance services.
10.___	___	10. Planning a construction schedule.
11.___	___	11. Observing board actions on building problems.
12.___	___	12. Making an enrollment projection.
13.___	___	13. Making a land use study.
14.___	___	14. Making a financial study of a community.
15.___	___	15. Determining the educational needs of a community.
16.___	___	16. Determining building needs of a commnnity.
17.___	___	17. Writing actual or hypothetical educational specifications.
18.___	___	18. Planning an actual or hypothetical bond issue.
19.___	___	19. Planning an actual or hypothetical dedication ceremony or public relations activities.
20.___	___	20. Planning orientation activities for an actual or hypothetical building.
21.___	___	21. Serving a part-time internship with local school district in cooperation with a university.
22.___	___	22. Serving a part-time internship with a state department of education in cooperation with a university.
23.___	___	23. Other please specify:______________ ______________________

2/9 Please check those areas in which you have had formal training in curriculum:

___1. Elementary curriculum
___2. Secondary curriculum
___3. Curriculum construction
___4. Leadership in curriculum
___5. Curriculum improvement
___6. Other (Please specify):______________________________

2/10 What other related courses do you feel have been of help to you:

____

____

EXPERIENTIAL BACKGROUND

3/1 Please check those positions which you have held. If you have held a position not listed, fill in the blanks provided.

Indicate by number the order in which these were held.	Number of years in a position.	Types of Positions
____	____	1. Administrator (College)
____	____	2. Architect
____	____	3. Designer
____	____	4. Draftsman
____	____	5. Engineer
____	____	6. Principal (Elementary)
____	____	7. Principal (Secondary)
____	____	8. State Department of Education
____	____	9. Superintendent
____	____	10. Superintendent (Assistant for Business)
____	____	11. Superintendent (Assistant for Curriculum/ Instruction)
____	____	12. Superintendent (Assistant for Plant)
____	____	13. Supervisor of Instruction
____	____	14. Teacher (College)
____	____	15. Teacher (Secondary)
____	____	16. Teacher (Elementary)
____	____	17. U.S. Office of Education
____	____	18. Other:____________________
____	____	19. Other:____________________

3/2 What do you consider your "specialties" in the field of school plant planning? (e.g.lighting, relation of school program to plant, etc.)

____

____

3/3 How were these specialties developed? (Check as many as may apply)
___1. Through formal education
___2. Experience on the job
___3. Research in connection with training
___4. Research in connection with a job
___5. Through participation in activities of a professional organization
___6. Other (Please specify)____________________________

3/4 What type of position in school plant planning would you ultimately hope to hold?____________________________________

NATURE OF HIRING INSTITUTION

4/1 Please check the type of institution in which you are presently employed:

___1. Architectural firm
___2. Public school district (How many students enrolled in the district___)
___3. College (Private) (How many students enrolled in the college___)
___4. College (State) (How many students enrolled in the college___)
___5. State Department of Education
___6. U.S. Office of Education
___7. Other (Please specify)___

4/2 Population of city in which hiring institution is located:___
4/3 State or province in which institution is located:___

SCOPE OF THE POSITION

5/1 Job title:___
5/2 Did the position exist before your being in the position?
___1. Yes
___2. No
5/3 To whom are you directly responsible (position):___
5/4 What positions are directly responsible to you:

Position	Number of Personnel in each category
___	___
___	___
___	___

5/5 Approximate number of hours spent per week in the field of school plant planning:
___1. 0-5
___2. 6-10
___3. 11-15
___4. 16-20
___5. 21-25
___6. 26-30
___7. 31-35
___8. 36-40
___9. 41-45
___10. Over 45

5/6 If you are not a full-time planner, of what does the remainder of your work consist?___

5/7 Please check those tasks which are part of your job. Use the column which would apply to your position. If there are other tasks which are not listed, please use the spaces provided.

Architect	College	Local Dist.	Federal or State	Other	Tasks
____	____	____	____	____	1. Teaching classes
____	____	____	____	____	2. Writing educational specifications
____	____	____	____	____	3. Writing professional articles
____	____	____	____	____	4. Writing survey reports
____	____	____	____	____	5. Conferring with boards and administrators
____	____	____	____	____	6. Conferring with lay citizen groups
____	____	____	____	____	7. Conducting school surveys
____	____	____	____	____	8. Counselling advisees
____	____	____	____	____	9. Directing research projects
____	____	____	____	____	10. Designing buildings
____	____	____	____	____	11. Site selection
____	____	____	____	____	12. Negotiating for sites
____	____	____	____	____	13. Projecting population growth
____	____	____	____	____	14. Consulting re: Maintenance
____	____	____	____	____	15. Consulting re: Equipment & Furniture
____	____	____	____	____	16. Consulting re: Financing Buildings
____	____	____	____	____	17. Consulting re: Building Codes
____	____	____	____	____	18. Conferring with architects
____	____	____	____	____	19. Other (Please specify) a.________
____	____	____	____	____	b.________________
____	____	____	____	____	c.________________

5/8 Circle the corresponding numbers to the two tasks above which take up the greatest portion of your time:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

5/9 Please check those tasks you find most difficult in your position because of a lack of experience and/or a lack of training.

Difficult Because Lack of Experience	Difficult Because Lack of Training	Type of Task
____	____	1. Conducting school district surveys
____	____	2. Working with lay citizen groups
____	____	3. Working with school boards
____	____	4. Working with administrative staffs
____	____	5. Working with faculties
____	____	6. Working with architects
____	____	7. Writing educational specifications
____	____	8. Negotiating for sites
____	____	9. Selecting sites
____	____	10. Teaching classes in school plant planning
____	____	11. Advisee load
____	____	12. Directing research projects
____	____	13. Projecting pupil enrollments
____	____	14. Anticipating annexation problems re: buildings
____	____	15. Consulting re: Maintenance
____	____	16. Consulting re: Financing Buildings
____	____	17. Consulting re: Building Codes
____	____	18. Consulting re: Equipment & Furniture
____	____	19. Other (Please specify)a.__________
____	____	b.________________
____	____	c.________________

5/10 Please check those with whom you are usually involved in planning a new facility:
___1. Administration
___2. Faculty
___3. Board of Education
___4. Architect
___5. Lay citizens
___6. Other (Please specify):
___ a.___________
___ b.___________
___ c.___________

5/11 Do you see any change in the pattern of involvement in the future?
___1. Yes
___2. No

5/12 If you see a change, please check those you feel will become more or less involved:

More	Less	Area
___1.	___1.	1. Administrators
___2.	___2.	2. Faculties
___3.	___3.	3. Boards of Education
___4.	___4.	4. Architects
___5.	___5.	5. Lay citizens
___6.	___6.	6. Other (Please specify)
___	___	a.________________
___	___	b.________________

5/13 What other changes do you see in the pattern of involvement in school plant planning?____
____

PERSONAL SATISFACTION

6/1 Economic satisfaction: Please check to indicate the extent of your satisfaction with your present position from the point of view of the total economic aspect. This includes benefits other than salary (e.g. retirement, health insurance, etc.)
___1. I am fully satisfied with the economic status of the position.
___2. I am only partially satisfied with the economic status of the position.
___3. I am dissatisfied with the economic status of the position.

6/2 If you answered that you were partially satisfied or dissatisfied, please indicate areas you feel need to be improved:
___1. Salary base
___2. Retirement benefits
___3. Health insurance
___4. Travel allowance
___5. Other (Please specify)
___ a.________________
___ b.________________

6/3 Professional satisfaction: Please check to indicate how well pleased you are with your position in terms of professional satisfaction:
___1. I am thoroughly satisfied. I've no desire to change positions at this time.
___2. I'm somewhat satisfied, but would desire a change.
___3. I'm somewhat dissatisfied. I'd change if I could.
___4. I'm thoroughly dissatisfied.

6/4 If you would consider a change of position, would the position you would seek be in:
____1. The field of school plant planning?
____2. A different field: if so, what field?____________________
____3. A different type hiring institution?
____4. Other (Please specify) ____________________

6/5 If you checked "a different type hiring institution," to which of the following would you be most interested in going?
____1. College
____2. Local district
____3. Architectural firm
____4. State or Federal agency
____5. Other (Please specify)____________________

6/6 Please check the interval which includes the annual income earned in your present position. (Please include salary, consultant fees, etc.)
____1. Less than $6,000
____2. $6,000-$7,999
____3. $8,000-$9,999
____4. $10,000-$11,999
____5. $12,000-$13,999
____6. $14,000-$15,999
____7. $16,000-$17,999
____8. $18,000-$19,999
____9. $20,000 or over

OPIONIONNAIRE CONCERNING DESIRABLE EDUCATION AND EXPERIENCE

Please answer the following questions in terms of optimum conditions -- what should be rather than what is.

7/1 What courses of study (majors and minors) do you feel would be ideal for the person filling a position similar to yours:
a. Undergraduate major:______________ Minor:______________
b. Masters major:______________ Minor:______________
c. Doctorate:______________ Cognate:______________

7/2 Do you feel training in depth in a discipline other than your major (e.g., urban planning, sociology, psychology, etc.) is:
____1. Highly desirable
____2. Desirable but not necessary
____3. Would make little difference in job performance
____4. Not desirable
____5. Other (Please specify)____________________

7/3 If you feel such training in a discipline other than your major is desirable as a cognate area in the doctoral level, what discipline would be most helpful to a person filling a position similar to yours?
____

7/4 What specialized courses would you consider absolutely necessary for the school plant planner of the future?
____________________ ____________________
____________________ ____________________
____________________ ____________________

7/5 What other suggestions would you have for the ideal preparation program?

____

____

7/6 What sequence of positions would you feel to be most desirable for the person filling a position similar to yours, and what would be the optimum time to spend in each?

____ Time:_______________
____ Time:_______________
____ Time:_______________
____ Time:_______________
____ Time:_______________

7/7 What experiences would be particularly valuable to a planner that might be experiences outside his formal education or position? (e.g. working with an architect, assisting in a school survey, etc.)

____

____

APPENDIX B

COLLEGES AND UNIVERSITIES GRANTING HIGHEST DEGREES HELD BY PLANNERS RESPONDING TO STUDY

APPENDIX B

COLLEGES AND UNIVERSITIES GRANTING HIGHEST DEGREES HELD BY PLANNERS RESPONDING TO STUDY

College or University	Degrees Held				
	Doctor's	Six-Year	Master's	Bachelor's	Totals
Arizona State			1		1
Ball State				1	1
U. of California	1			1	2
U. of Calif., L.A.	1				1
U. of So. California	1	1	1	1	4
Catholic University				1	1
U. of Chicago	2				2
U. of Cincinnati			1		1
Claremont			1		1
Colorado State	4		1		5
U. of Colorado		1			1
Columbia, Teachers College	20	2	2		24
Cornell	2				2
Delhousie				1	1
Drexel Institute				1	1
Duke University			1		1
Florida State U.	2			1	3
U. of Florida	1			3	4
Georgia Inst. of Tech.				2	2
Georgia Tech.				1	1
U. of Georgia			3		3
Harvard U.	1	1	1		3
Johns Hopkins U.				2	2
U. of Hawaii				2	2
U. of Illinois	1		1	1	3
Indiana State		1			1
Indiana U.	4				4
State Coll. of Iowa		1			1
State U. of Iowa	2				2
U. of Kansas			1		1
Kent State U.			1		1
U. of Kentucky			1		1
U. of Maryland		1			1
U. of Miami, Fla.			1		1
Michigan State U.	4		2		6
U. of Michigan	4		2		6
Middle Tennessee St.			1		1
U. of Minnesota	1	1	2		4
U. of So. Mississippi		1			1
U. of Missouri	4		2		6
U. of Nebraska	8				8
U. of New Brunswick				1	1
U. of New Mexico	1				1

APPENDIX B (Continued)

College or University	Degrees Held				
	Doctor's	Six-Year	Master's	Bachelor's	Totals
New York U.	2		1		3
State U. of New York	1				1
U. of Nevada				1	1
No. Carolina State				1	1
U. of No. Carolina	3				3
Northwestern U.	1	1			2
Ohio State U.	8		1		9
Oklahoma U.	1			1	2
Oklahoma State			1		1
Central State of Oklahoma				1	1
Oregon State				1	1
U. of Oregon	1	1	2		4
Geo. Peabody College	3	1	1		5
Pennsylvania State	1				1
U. of Omaha			1		1
U. of Pittsburgh	1			1	2
Plymouth State Coll.			1		1
Rutgers	1		1	1	3
Seattle U.			1		1
U. of So. Carolina			1		1
So. Dakota State			1		1
Stanford U.	3	1	1		5
Syracuse U.				1	1
Temple U.	1				1
U. of Tennessee	5		1	1	7
U. of Texas	1		1	1	3
Texas A. & M.			1		1
U. of Toronto			1	2	3
Vanderbilt				1	1
Virginia Polytech.				1	1
Washington State				1	1
Washington U. (Mo.)				1	1
Wayne State U.	1	1			2
Western Maryland				1	1
Western Reserve	1		1		2
U. of Wisconsin	2		3		5
U. of Wyoming	1				1
U. of Washington				1	1
Yale	1	1			2

APPENDIX C

PUBLIC SCHOOL PLANT SPECIALISTS' JOB TITLES

APPENDIX C

PUBLIC SCHOOL PLANT SPECIALISTS' JOB TITLES

Titles	Frequency
Administrative Assistant	2
Administrative Intern	1
Administrative Supervisor	1
Architect to the Board	2
Ass't. Director of Buildings and Grounds	1
Ass't. Superintendent	3
Ass't. Sup't. - Administrative Services	1
Ass't. Sup't. - Buildings and Grounds	2
Ass't. Sup't. - Business	3
Ass't. Sup't. - Physical Plant	2
Ass't. Sup't. - Plant Management	1
Ass't. Sup't. - Supportive Services	1
Associate Superintendent	1
Business Manager	1
Chief, Bureau of Housing	1
Commissioner of School Housing	1
Coordinator of Buildings and Grounds	1
Coordinator of Building Planning	1
Coordinator of Building Programs	1
Deputy Superintendent	3
Deputy Sup't - Business	1
Director of Buildings and Grounds	2
Director of Building Program Studies	1
Director of Curriculum	1
Dir. of Curriculum and School Housing Planning	1
Director of Non-instructional Services	1
Director of Plant Facilities	9
Director of School Building Planning	3
Director of School Construction and Maintenance	2
Director of School Housing Research	1
Principal, Elementary	1
Engineer in Charge of Const., Maint., and Oper.	1
School Planning Consultant	1
Superintendent of Buildings and Grounds	1
Superintendent of Plant	1
Superintendent of Schools	3
Supervisor	3
Supervisor of Planning and Building	1
Supervisor of Engineering	2
Supervisor of School Housing Research	1